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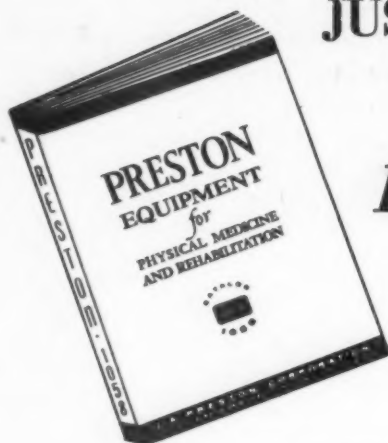
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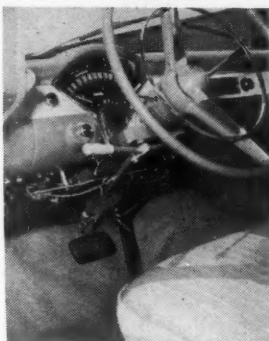
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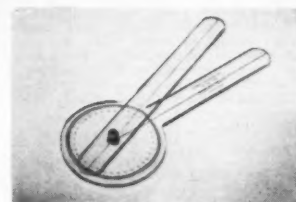
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HOME EXERCISES FOR CONVALESCING CARDIAC PATIENTS

ISOMETRIC TENSION EXERCISES (PART 2)

C. H. McCLOY, Ph.D.*

Part I of this article appeared in our last issue 11:6:181-185.

Introduction

A third type of program is based upon research published in Germany in 1953.¹ Hettinger and Muller found that if a muscle is put on an isometric tension equal to 2/3 of its maximum tension and kept at this degree of tension *just once a day*, the muscle will increase in strength from 2% to 5% per week up to the individual's physiological limit. To make this principle clear, suppose a normal subject is able to flex his forearm carrying a dumbbell in his hand weighing 30 lbs. (this being the maximum amount with which he can flex that forearm). If he then were to grasp a weight of 20 lbs. and hold a semi-flexed position (with the elbow at 90°) *just once a day*, a developmental stimulus would result which would cause that muscle to develop in strength quite rapidly up to, as stated above, from 2% to 5% per week. This result is attributed by the authors of the research to be the result of the anoxia in the muscle being brought about by the cutting-off of the capillary blood supply by the muscular effort. A later study by Muller² seems to prove that if the contraction is held only momentarily, it achieves the same result.

Working on this principle, the present author has prepared a series of 17 exercises in which the subject offers isometric resistance to his own movements using only a small part of the body at one time thus not raising his blood pressure significantly. The subject, again, should under no circumstances close the glottis, but should breathe easily and continuously. There is *only one* contraction for each muscle group to be executed each day. The outline follows:

Isometric Tension Exercises

The principal muscles exercised by each movement are indicated for the information of the physician.

1. Subject stands or sits with arms elevated, forearms half-flexed, and one fist pressing against the palm of the opposite hand, hands immediately above the top of the head. Subject presses both hands together against each other over the head. (deltoid and trapezius)

2. Subject stands or sits with hands pressing together (one fist in the palm of the opposite hand) with hands immediately in front of chest, elbows at shoulder height. Subject presses hands together hard in front of chest. (Pectoralis major group)

3. Subject stands or sits with hands clasped in front of chest, elbows at shoulder height. Subject pulls hands apart vigorously. (Shoulder retractors—trapezius, rhomboids, posterior deltoids)

4. Subject either stands or lies on back on floor, with arms straight and hands resting on the fronts of thighs. Subject presses against thighs hard, keeping elbows straight. (Latissimus and teres major group, and long head of triceps)

5. Subject standing or sitting, hands clasped behind occiput, elbows forward. Subject pulls head backward hard against resistance offered by hands and arms. (Extensors of head and neck)

6. Subject stands or sits with heels of hands against forehead, elbows forward. Subject presses head forward against resistance of hands. (Flexors of head and neck)

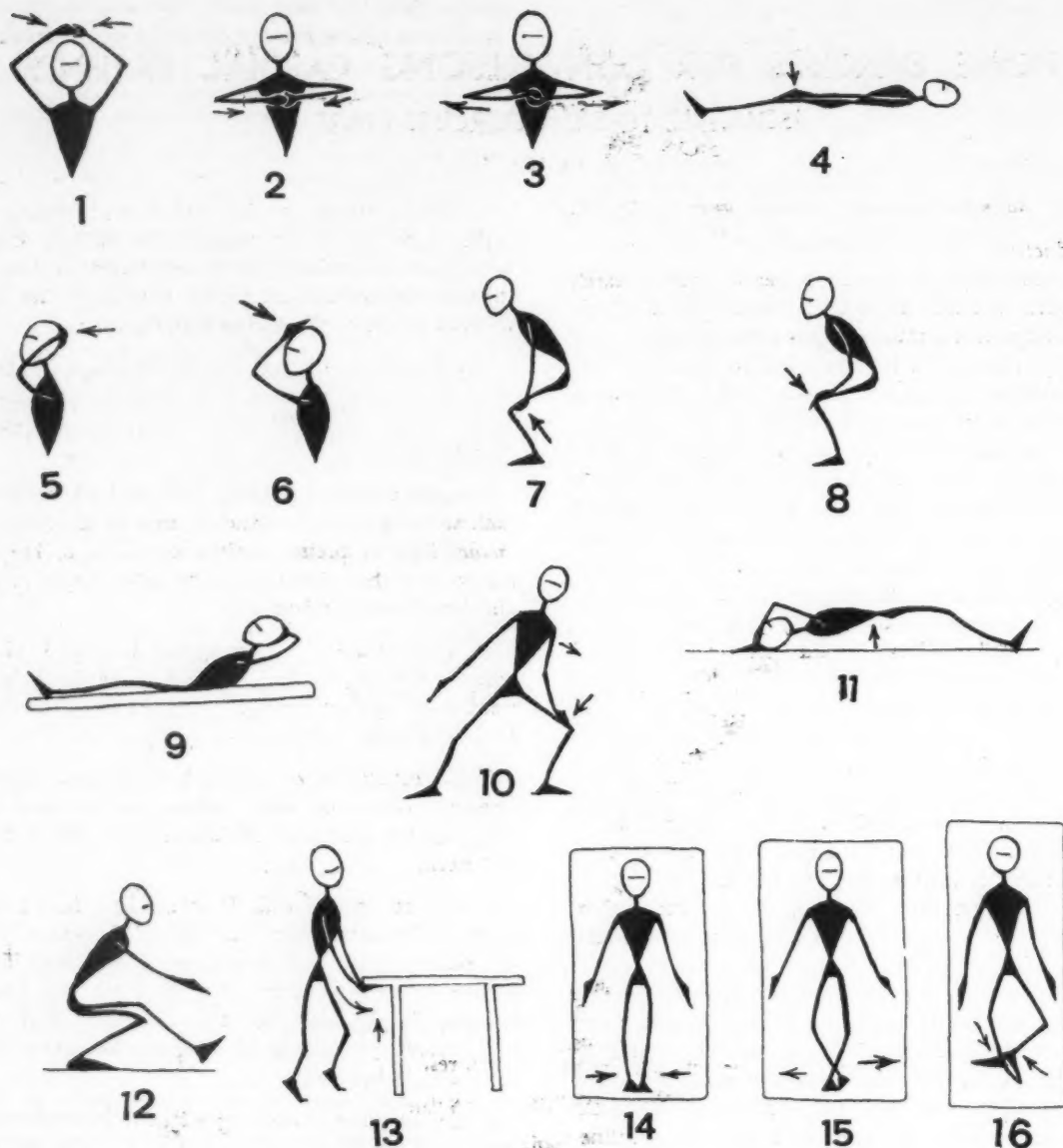
7. Subject sitting, with forearms half flexed and hands underneath thighs just behind the knees. Subject pulls upward with hands, as though attempting to flex forearms. (Biceps and other forearm flexor muscles) If physician feels that this exercise should be "diluted" a bit, it can be done one hand at a time with rests in between.

8. Subject seated, bending slightly forward, with hands pressing downward on fronts of thighs just behind knees. Subject presses down hard with hands against thighs. (Forearm extensors—triceps, etc.) This exercise can also be done one hand at a time.

9. Subject lying supine on floor or bed, keeping small of back on the surface upon which he is lying. Subject attempts to flex his trunk, above the small of the back, forward as far as possible. ("As though he were trying to press his chin against his umbilicus.")

*Th. Hettinger and E. A. Muller, "Muskelleistung und Muskeltraining," *Arbeitsphysiologie* XV:2:116-126, Oct. 1953.
*Eric Muller, "The Regulation of Muscular Strength," *Jrnl. of the Assoc. for Phys and Mental Reha.*, 11:2:5, 41-47 March, 1957.

*State University of Iowa.



Subject

Subject holds this position for the required six seconds. (All abdominal muscles)

10. Subject standing, with feet wide apart sidewise. Subject takes a sideward lunge position to the left and presses down hard against the left (bent) knee with left hand (elbow straight). He later does the same exercise to the opposite side. (The oblique muscles of the abdomen)

11. Subject reclines supine on floor or bed, with legs almost straight. Two fists are placed against the supporting surface, one fist opposite each ear.

Elbows are upward toward the ceiling. He then attempts to raise his body from head to heels (with knees as straight as possible) from the surface, and holds this position for the required six seconds. (All erector spinae muscles, and all extensors of thighs) If the patient is too weak to bridge with knees straight, he may at the beginning bend the knees slightly, pulling the feet upward from six inches to one foot up towards the hips. As he becomes stronger, he should straighten out more.

12. With subject standing on one foot, he does a partial squat (from $\frac{1}{2}$ to a $\frac{3}{4}$ squat) on one leg

and holds it for for the required six seconds. As he gets stronger, he will squat slightly farther down. Subject then repeats the exercise with the opposite leg.

13. Subject stands close to some heavy object such as a table, or dresser, or foot of the bed, holds onto this object with his hands, pulling upward on the object. He then rises on the ball of one foot, with the other foot off the floor and holds it for the required time. (Triceps surae)

14. Subject reclines supine and presses the two legs together with legs straight. (Thigh adductors)

15. Subject reclines supine with legs straight, hooks feet together, one over the other, and attempts to pull feet apart. (Thigh abductors)

16. Subject lying supine, with left thigh rotated laterally and with lower leg flexed about 60°. The heel of right leg, also flexed, is pressed backward against the instep of the left foot and subject attempts to flex the right lower leg. (Gastrocnemius and hamstrings) The individual then repeats the exercise with the other leg.

17. Subject stands and raises chest as high as possible, taking a deep breath and holding the inhalation (glottis open) for six seconds. He then exhales and holds it in as much of an exhalation position as possible for the six seconds. (This exercise is planned to exercise the respiratory muscles of chest and diaphragm, primarily to prevent the not-uncommon deterioration of respiratory muscles and the ligaments of the thorax which will eventually reduce the vital capacity of the lungs.)

It will be noted that with these exercises, including those that are done first on one side and then

on the other, if there were no pauses between exercises the whole routine could be gone through in about 2½ minutes. This, of course, is not desirable. The patient should rest as much as necessary between exercises, possibly checking his progress by noting his pulse rate, and, of course, discontinuing the routine any time any suspicion of anginal symptoms appears.

The advantage of this type of routine is twofold: first, it is quick and easy to perform, and results in a steady increase in muscular strength, thus preparing the patient muscularly for return to active work. Second—and this sounds fantastic, but there is proof that it is true—after the first year, *one* execution per week will maintain the strength developed—and after the second year, *one* execution a month will maintain it! During the first year the strength will have been increased probably at least 50%, usually more than that. This leaves the individual ordinarily *strong enough to engage in any form of activity which would be appropriate for an ex-cardiac.*

These three exercise routines are offered for experimentation with convalescent cardiac patients. It should be noted that such experimentation with the first two exercise outlines (See Part I) *has already been conducted* (in the Army's Reconditioning Program) and found successful. However, most of this experimentation was done with patients recovering from rheumatic fever, and very little of it was done with patients who had had coronary occlusions. The tension program was, of course, not available in 1943 as it was not published until ten years later. Experimentation with the isometric tension exercises has been conducted with one experimenter (the present author) and has been found to be effective.

FUNGUS INFECTION DEVELOPS IN SOME DIABETICS

Finding of a unique fungus infection that develops in persons with diabetes emphasizes the need for the most careful medical attention for all diabetics, Veterans Administration has reported. However, not all diabetics are likely to develop the strange fungus disease, VA said.

Research at the VA hospital in Durham, N.C., indicates the disease, known as mucormycosis, occurs in persons with "acidosis," one of the complications of diabetes, but not in other diabetics. An intensive search is underway at the hospital for an antibiotic drug to combat the fungus infection.

The researchers are Dr. Roger Baker, chief of laboratory service at the VA hospital and professor of pathology at Duke University School of Medicine, his associates at the hospital, and Dr. Elizabeth Ferrington, assistant chief of laboratory service at the VA center in Jackson, Miss. Since 1943, they have studied nearly 50 cases of mucormycosis.

Dr. Baker said the increase since 1943 in the number of cases of mucormycosis may well be due to submergence of bacteria. Before the wonder drugs became available for general use, persons with diabetes were prone to develop bacterial infections, but now that the bacteria are held in check by antibiotics, fungi are found able to develop in persons with diabetes, Dr. Baker said.

Mucormycosis also attacks persons who already have certain other diseases, such as leukemia, and are prone to

infections of all sorts, Dr. Baker's studies show.

"What happens," Dr. Baker said, "is that the fungus enters a person's body through the nose or lungs and grows through the tough muscular walls of his arteries in a strange, worm-like fashion that doctors have observed in no other diseases." "We don't know why these broad fungus filaments have such an affinity for arteries," Dr. Baker said, "but when they reach the interior of the artery they grow along it and the result is a thrombosis, or clotting."

He said the clotting may deprive the tissues of blood and hence cause the death of those tissues or part of an organ, producing what doctors call an infarct. Infarcts may come in fatal form in the patient's brain or lung, according to Dr. Baker.

The organism of mucormycosis, the group has found, is a fungus or vegetable organism that grows freely in nature and usually is quite harmless. Dr. Baker said the word mucormycosis comes from "mucor," the name of a particular species of fungus, and "mycosis," meaning fungus disease.

Dr. Baker described his work in a recent article in the *Journal of the American Medical Association*, entitled "Mucormycosis—A New Disease?" and also reported it to fellow pathologists at the International Congress of Clinical Pathology in Brussels, Belgium, this summer.

THE NATURE OF CARDIOVASCULAR CONDITION IN NORMAL HUMANS (Part 2)

THOMAS KIRK CURETON, Ph.D., F. A. P. H. A. *

CARDIOVASCULAR COMPONENT II—SPLANCHNIC TONE

The second component of cardiovascular fitness is usually called *Splanchnic Tone*; but considered negatively it can also be called *Circulatory Ptosis*. In good splanchnic tone the large leg and abdominal veins are moderately constricted to keep most of the blood in circulation; whereas, in circulatory ptosis a large amount of blood collects (pools) in the veins; the lower part of the body then holds more blood than the upper part, resulting in poor circulation as a whole, and especially in the head and upper body. Some subjects with marked circulatory ptosis may faint if they stand perfectly still or are strapped to a tilt table.

The heart is not a vacuum pump and has little if any power to suck the blood up from the legs against gravity. This is accomplished by the rhythmical contractions in the veins, by muscle tension (tone) exerting pressure on the veins and by the rhythmical contraction of the muscles acting as "auxiliary pumps." As the tone of the muscles and fitness of the veins becomes poor, the return circulation to the heart becomes poor. Since the heart cannot put out what does not come to it, the output of the heart may also be poor. Actually, the blood just "sags" downward into the feet, legs and lower abdomen. The pulse waves (sphygmograms) on the carotid artery of the neck or the brachial pulse wave of the upper arm usually reduce in size as one changes from lying to standing or from sitting to standing postures.

Tests of Splanchnic Tone

Abby Turner¹⁴ was able to show the swelling in the feet and legs of young college women due to stagnation of circulation, associated with a steady rise in pulse rate and lowering of the pulse pressure in a 15-minute quiet standing test. She found that a snug abdominal bandage helped to prevent the "sag" of the blood column; and there was better circulation after a meal. Certain studies have also shown marked and progressive response to being tilted, while strapped to a tilt table, through angles of 15, 30, 45, 60, 75 and 90 degrees from horizontal.

*Professor of Physical Education, Director of the Physical Fitness Research Laboratory, University of Illinois, Urbana.

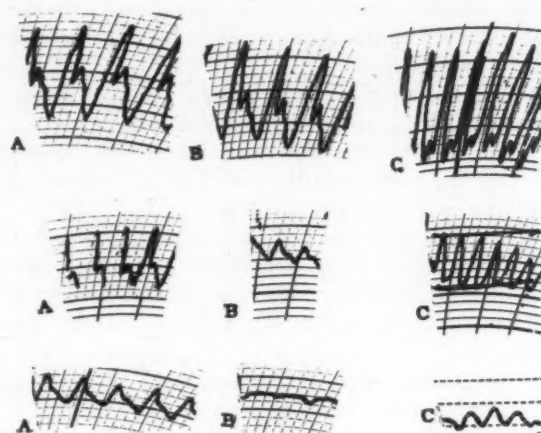


Fig. 11

BRACHIAL PULSE WAVES, THREE TYPES

(To Show Strong, Average and Weak Circulation)

(Top) Good (Strong) Sphygmograms

(Middle) Average (Moderate Waves)

(Bottom) Poor (Weak) Sphygmograms

A—Sitting

B—Standing

C—Standing after 1-min. run in place

Morehouse¹⁵ reported an experiment in which a cannula was inserted into one of the larger veins of the foot. To this was attached a glass tube which extended up to shoulder height of the standing subject. The tube was filled to the level of the heart with a physiological salt solution. As the subject stood quietly, the subject lapsed into unconsciousness. The fluid could be kept up by wriggling the toes and making slight movements with the feet and legs. But when the movements were stopped the water column started to drop within a minute. In ten minutes it was down to belt level and then the subject lapsed into unconsciousness.

¹⁴Abby H. Turner, "The Adjustment of Heart Rate and Arterial Pressure in Healthy Young Women During Prolonged Standing," *Am. Jour. Physiol.*, 81:197, 1927; "The Circulatory Reactions in Standing," *The Research Quarterly*, 1:5-16 (Dec. 1930).

¹⁵Lawrence E. Morehouse, *Professional Contributions No. 5. American Academy of Physical Education*, P. 40, Nov. 1956.

TABLE III
CRAMPTON BLOOD PTOSIS TEST

PULSE RATE	Increase on Standing										Decrease on Standing										Percentage Scale									
	20-19	18-17	16-15	14-13	12-11	10-9	8-7	6-5	4-3	2-1	0	-1-2	-2-3	-3-4	-4-5	-5-6	-6-7	-7-8	-8-9	-9-10	-10-11	-11-12	-12-13	-13-14	-14-15	-15-16	-16-17	-17-18	-18-19	-19-20
-8 to -12	140	135	130	125	120	115	110	105	100	95	90	85	80	75	70	65	60	55	50	45	40	35	30	25	20	15	10	5	0	-5
-4 to -8	135	130	125	120	115	110	105	100	95	90	85	80	75	70	65	60	55	50	45	40	35	30	25	20	15	10	5	0	-5	-10
0 to -4	130	125	120	115	110	105	100	95	90	85	80	75	70	65	60	55	50	45	40	35	30	25	20	15	10	5	0	-5	-10	-15
0 to 4	125	120	115	110	105	100	95	90	85	80	75	70	65	60	55	50	45	40	35	30	25	20	15	10	5	0	-5	-10	-15	-20
5 to 8	120	115	110	105	100	95	90	85	80	75	70	65	60	55	50	45	40	35	30	25	20	15	10	5	0	-5	-10	-15	-20	-25
9 to 12	115	110	105	100	95	90	85	80	75	70	65	60	55	50	45	40	35	30	25	20	15	10	5	0	-5	-10	-15	-20	-25	-30
13 to 16	110	105	100	95	90	85	80	75	70	65	60	55	50	45	40	35	30	25	20	15	10	5	0	-5	-10	-15	-20	-25	-30	-35
17 to 20	105	100	95	90	85	80	75	70	65	60	55	50	45	40	35	30	25	20	15	10	5	0	-5	-10	-15	-20	-25	-30	-35	-40
21 to 24	100	95	90	85	80	75	70	65	60	55	50	45	40	35	30	25	20	15	10	5	0	-5	-10	-15	-20	-25	-30	-35	-40	-45
25 to 28	95	90	85	80	75	70	65	60	55	50	45	40	35	30	25	20	15	10	5	0	-5	-10	-15	-20	-25	-30	-35	-40	-45	-50
29 to 32	90	85	80	75	70	65	60	55	50	45	40	35	30	25	20	15	10	5	0	-5	-10	-15	-20	-25	-30	-35	-40	-45	-50	-55
33 to 36	85	80	75	70	65	60	55	50	45	40	35	30	25	20	15	10	5	0	-5	-10	-15	-20	-25	-30	-35	-40	-45	-50	-55	-60
37 to 40	80	75	70	65	60	55	50	45	40	35	30	25	20	15	10	5	0	-5	-10	-15	-20	-25	-30	-35	-40	-45	-50	-55	-60	-65
41 to 44	75	70	65	60	55	50	45	40	35	30	25	20	15	10	5	0	-5	-10	-15	-20	-25	-30	-35	-40	-45	-50	-55	-60	-65	-70
45 to 48	70	65	60	55	50	45	40	35	30	25	20	15	10	5	0	-5	-10	-15	-20	-25	-30	-35	-40	-45	-50	-55	-60	-65	-70	-75
49 to 52	65	60	55	50	45	40	35	30	25	20	15	10	5	0	-5	-10	-15	-20	-25	-30	-35	-40	-45	-50	-55	-60	-65	-70	-75	-80
53 to 56	60	55	50	45	40	35	30	25	20	15	10	5	0	-5	-10	-15	-20	-25	-30	-35	-40	-45	-50	-55	-60	-65	-70	-75	-80	-85
57 to 60	55	50	45	40	35	30	25	20	15	10	5	0	-5	-10	-15	-20	-25	-30	-35	-40	-45	-50	-55	-60	-65	-70	-75	-80	-85	-90

Several other types of tests have been used to measure in a rough proportionate way such splanchnic ptosis or tone:

1. The Crampton Blood Ptosis Test.
2. The Pulse Wave Decrement Test.

3. Drop in Pulse Pressure in Changing from Lying to Standing.

The general principle of all these tests is that the blood becomes unevenly distributed in what is called "blood ptosis" or "circulatory ptosis" and is indicated

BEFORE PHYSICAL TRAINING

DATE 1/4/55 to 1/15/55
Crampton Index = 75
Drop in Pulse Pressure = -20
mm. Hg.
T = 5.0 mm.
R = 13.0 mm.

SUBJECT L.S.
Treadmill Run @
5 Mi./Hr. = 1:18
Terminal Pulse = 164
Post-Ex. B.P. = 212/96
Normal B.P. = 138/130

SOMATYPE 5½ - 5-2
Age = 47
Height = 72.7 in.
Strength = 951 lbs.
Strength
Weight = 3.79

Sitting



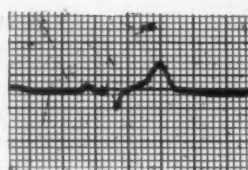
Standing



After 1-Minute
Run in Place



R = 13.0 mm.
T = 5.0 mm.



FAT

Face Cheek	25
Abdomen	39
Hips	42
Gluteals	46
Front Thigh	36
Rear Thigh	29
TOTAL	217 mm.

WEIGHT = 251.5 lbs.

Abdominal Girth = 45.5"

Chest
(Expanded) 45.3"
(Deflated) 42.4"

Chest Girth—
Abd. Girth = -0.2"

Fig. 12

proportionately by a drop in the pulse pressure, brachial sphygmogram, or by a combination of these along with a rise in pulse rate.

Cureton¹⁸ standardized the Quiet Sitting Brachial Pulse Wave Test, using the Cameron heartometer as a graphical recorder. The drop in the brachial pulse wave from sitting to standing has been proved to be a good circulatory fitness test by Massey, Husman and Kehoe.¹⁷ The brachial pulse wave was shown to cor-

¹⁸T. K. Cureton, "Rating Cardiovascular Condition by the Heartometer Pulse Wave Tests," Pp. 232-280, *Physical Fitness Appraisal and Guidance*, St. Louis: C. V. Mosby Co., 1947; Pp. 228-254, *Physical Fitness of Champion Athletes*, Urbana: Univ. of Illinois Press, 1951.

¹⁷B. H. Massey, B. F. Husman and C. L. Kehoe, "The Effect of Posture on the Brachial Sphygmogram as an Indicator of Cardiovascular Condition," *The Research Quarterly*, 24: 194-204, (May, 1953).

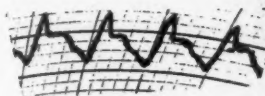
AFTER 1 YEAR OF PHYSICAL TRAINING

DATE 1/14/56
Crampton Index = 50
Drop in Pulse Pressure
= 14 mm. Hg.
T = 11.1 mm.
R = 15.5 mm.

SUBJECT L.S.
Treadmill Run @
5 Mi./Hr. = 1:34
Terminal Pulse = 160
Post-Ex B.P. = 165/76
Normal B.P. = 116/88

AGE 48
Ht. = 72.7 in.
Strength = 964
 $\frac{\text{Strength}}{\text{Weight}} = 4.47$

Sitting



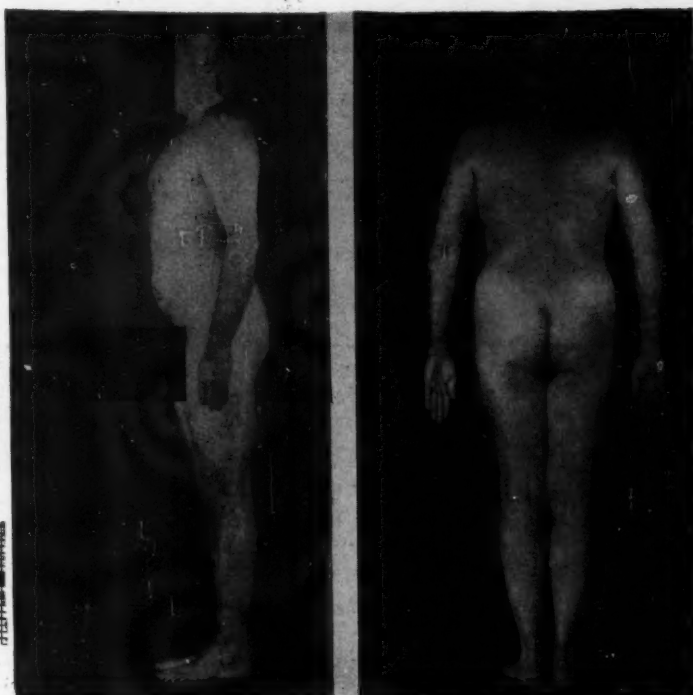
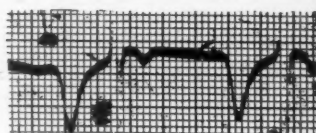
Standing



After 1-Minute
Run in Place



R = 15.5 mm.
T = 11.1 mm.



FAT

Face Cheek	19
Abdomen	25
Hips	19
Gluteals	22
Front Thigh	23
Rear Thigh	18
TOTAL	126 mm.

WEIGHT = 215.5 lbs.

Abdominal Girth	41.0"
Chest Girth	
(Expanded)	43.0"
(Deflated)	40.4"
Exp.	2.6"
Chest Girth—	
Abd. Girth =	2.0"

Fig. 13

relate highly with stroke volume, and to diminish in amplitude as supporting atmospheric pressure was diminished in a decompression chamber, in a series of experiments by Cureton and Massey¹⁸ and by Michael and Cureton.¹⁹ Physical training increases the amplitude of the waves, the stroke volume and the circulation.

¹⁸T. K. Cureton and Massey, "Brachial Peripheral Pulse Waves Related to Altitude Tolerance and Endurance," *Am. Jour. of Physiology*, 159:566, (Dec., 1949).

¹⁹E. D. Michael and T. K. Cureton, "Effects of Physical Training on Cardiac Output at Ground Level and at 15,000 Feet Simulated Altitude," *The Research Quarterly*, 24:446-452, (Dec., 1953).

TABLE IV
DECREMENT SCALES FOR SPLANCHNIC TONE

S.S.	Crampton Index* (Actual)	Decrement In Pulse Wave (mm.)	Change In Systolic Blood Pr.	Change In Pulse Pr.	Change In Pulse Rate	Crampton Index (Predicted)
100		+ 2.630	+26.501	+14.403	-11.040	
95		+ 1.886	+24.187	+12.003	- 8.280	
90	Data Skewed	+ 1.142	+21.833	+ 9.602	- 5.520	
85		+ 0.398	+19.499	+ 7.202	- 2.760	
80	100.000	- 0.346	+17.165	+ 4.801	0	Data Skewed
75	97.187	- 1.090	+14.831	+ 2.401	+ 2.871	
70	91.452	- 1.834	+12.497	0	+ 5.431	100.00
65	85.737	- 2.578	+10.163	- 1.311	+ 8.191	96.952
60	80.022	- 3.322	+ 7.829	- 3.711	+10.951	91.747
55	74.307	- 4.066	+ 5.475	- 6.112	+13.711	86.542
50	68.592	- 4.810	+ 3.161	- 8.512	+16.471	81.337
45	62.877	- 5.554	+ .827	-10.913	+19.231	76.132
40	57.162	- 6.298	0	-13.313	+21.991	70.927
35	51.447	- 7.042	- 2.334	-15.714	+24.751	65.722
30	45.732	- 7.786	- 4.698	-18.114	+27.511	60.517
25	40.017	- 8.530	- 7.002	-20.515	+30.271	55.312
20	34.302	- 9.274	- 9.336	-22.915	+33.031	50.107
15	28.587	-10.018	-11.670	-25.315	+35.791	44.902
10	22.872	-10.762	-14.004	-27.716	+38.551	39.697
5	17.157	-11.506	-16.338	-30.116	+44.311	34.492
0	11.442	-12.250	-18.672	-32.517	+44.071	29.287

This work has led up to another promising test in which the decrement is measured between the standing wave and the amplitude after a brisk (180 step/min.) run in place for one minute. The contrasting results of such a test are shown in Fig. 11, 1 (Good), 2 (Average), 3 (Poor). The run forces more blood toward the heart, into the right auricle; then, if it can get through the lung capillaries, the heart will increase its stroke as it works on more blood (Starling's Law). But in some people who have very poor venous return circulation, even while running, the brachial pulse wave does not increase and may even get smaller. Unless the actual blood flow gets greater, the faster pulse rate will cause the blood flow to divide into smaller increments (smaller waves).

Crampton²⁰, who has written several articles about this type of circulatory unfitness, assumed that a good adjustment from lying to standing position would cause a maximum rise in systolic blood pressure with no change in pulse rate. The "Crampton Index" is, therefore, a rating scale which includes these two aspects. It has been in use for many years and has been judged by physicians and surgeons to be of practical value. It has been used by surgeons to estimate the degree to which a patient pending an abdominal operation is disposed to shock (in which the blood pools in the abdomen). It has been used to judge the amount of danger from excessive pooling of blood into the abdomen and out of the general circulation where it is needed for consciousness in the brain, for the senses, and for general nutrition. The

condition of "splanchnic pooling" is something like paralysis of the circulation.

Analysis of the Crampton Index by statistical methods shows that the increase in pulse rate has somewhat more influence than the change in systolic blood pressure:

$$\text{Crampton Index} = 0.70 (\text{Change in Pulse Rate}) + 0.71 (\text{Change in Systolic B.P.})$$

Specific Nature of Component II

There are several studies which show the specific nature of this second component of cardiovascular condition. The most meaningful studies have been made by Larson (1938)²¹, Mary Agnes Murphy (1940)²² and Benjamin H. Massey (1953)²³. These studies show the uniqueness of this component and indicate that it should be considered as one of the components of cardiovascular fitness for value all unto itself. There is good support of Crampton's claim that the test is a valuable one, although Crampton never tried to champion it to appraise fitness for athletic purposes.

²⁰C. W. Crampton, "A Test of Condition," *Medical News*, Sept. 16, 1905; *New York Med. Jour.*, Nov., 1913; *Proc. of the Soc. of Exp. Biol. and Med.*, 12: 119, 1915.

²¹L. A. Larson, "A Study of the Validity of Some Cardiovascular Tests," New York: Ph.D. Thesis, New York University, 1938; also *Jour. of Exp. Ed.* 7: 214-220, (Mar., 1939).

²²Mary A. Murphy, "A Study of the Primary Components of Cardiovascular Tests," *The Research Quarterly*, 11: 57-71, (Mar., 1940).

²³Benjamin H. Massey, B. F. Husman and C. L. Kehoe, op. cit.

Cont'd on Page 22

A PHYSICAL FITNESS TEST FOR DOMICILIARY MEMBERS ADMINISTERED BY CORRECTIVE THERAPY

JACK B. PORTERFIELD, M.D.*

LESTER W. DANIELS, M. ED.**

OTHO H. SMITH, B.S.***

The initial medical evaluation of veterans accepted for Domiciliary care is the responsibility of the Domiciliary Medical Service. An integral part of this evaluation is a summary presentation to the Activity Planning Board by a physician, of the member's[†] medical condition and physical capacity for purposes of activity planning. The test described in this paper was devised to give the physician member of the board an appraisal of the Domiciliary member's physical capacity as related to certain basic motor skills and strength which may be required in the performance of constructive assignments.

The purpose and function of the Activity Planning Board is described in a Veterans Administration Publication¹. The manual lists under Statement of Policy, "To add meaning and direction to the members' daily living, it is necessary to make constructive employment of the hours available over and above that required for prescribed therapeutic regimen." It further states that any domiciled member is considered capable of assuming some specific responsibility regardless of how slight it may be. This board has the responsibility for formulating and maintaining, on a current and continuing basis, a plan of activity for each veteran admitted for Domiciliary care. Each Domiciliary member is to be furnished a plan of activity which embodies the daily performance of at least one specific assignment that constitutes a constructive contribution to the operation of the Station. The manual further states that the responsibility for the evaluation as to the member's mental and physical ability to perform constructive assignments will be discharged by the physician member of the board.

The Activity Planning Board at Kecoughtan VA Center is composed of:

Director, Domiciliary Services	Chairman
Ass't. Director, Domiciliary Services	Alternate Chairman
Chief, Domiciliary Medical Service	Member
Ass't. Chief, Domiciliary Medical Service	Alternate Member
Chief, Special Service	Member

*Chief, Physical Medicine and Rehabilitation Service, VA Center, Kecoughtan, Virginia.

**Chief, Corrective Therapy, VA Center, Kecoughtan, Virginia.

***Physical Medicine and Rehabilitation Coordinator, VA Center, Kecoughtan, Virginia.

Ass't. Chief, Special Service	Alternate Member
Chief, Clinical Psychology	Member
Vocational Counselor	Member
Asst. Chief, Clinical Psychology	Alternate Member
Physical Medicine and Rehabilitation Coordinator	Member
Chief, Physical Medicine and Rehabilitation Service	Alternate Member
Chief, Social Work Service	Member
Supervisory Social Worker	Alternate Member

Constructive assignments may vary in energy expenditure and time from a few minutes, such as the member taking care of his own personal area in the Section up to an eight hour work day/five days per week in some work like gardening or messenger service. Obviously then, tests were necessary which would indicate the possibility of a member succeeding in the duties assigned.

The Physical Fitness Test is given to all members as a part of the initial medical examining procedures and is also given as part of the member's annual medical re-examination. The medical examination is completed by one of the Domiciliary examining physicians who by virtue of his professional judgment deletes items of the Physical Fitness Test which are contraindicated because of recognized physical disabilities of a severe degree. The testing forms are then forwarded to the Corrective Therapy clinic. Testing is done early each morning, usually on the next regular work-day following physical examination.

After reviewing those medical examinations considered necessary and particularly noting precautions and contraindications for various items of the test, the testing therapist orients the member as to the purpose and procedures. The member is observed constantly during the testing and the therapist stands close by as the member performs all items (for example, walks along side the individual and goes up and down stairs with him.) The Physical Fitness Test contains five major test items:

[†]The term *member* as used in this paper refers to a veteran who is disabled to the extent that he is unable to engage in a gainful occupation and who receives complete maintenance together with indicated medical care in a Veterans Administration Domiciliary or the Domiciliary Section of a Veterans Administration Center.

¹Manual M-1, Veterans Admin., Dept. of Medicine and Surgery, Part III.

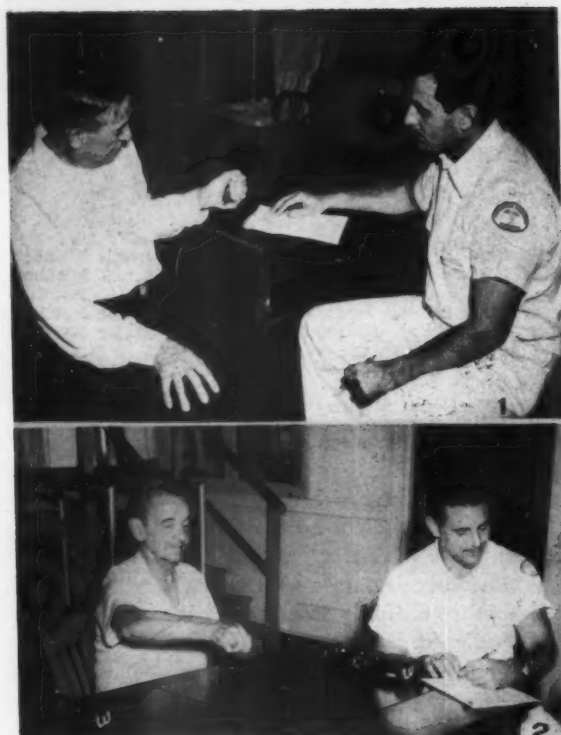


Fig. 1 Testing Hand Strength with Dynamometer
Fig. 2 Testing Upper Extremity Endurance with Small Dumbbell

ITEM 1. HAND FINGER - STRENGTH AND DEXTERITY:
(FIG. 1) POINTS

- a. Tie, fold, sort, file, write (2 points each) 10
- b. Hand grip, left (hand dynamometer)
(1 point each). 10, 25, 75 and 100. 5
- c. Hand grip, right (hand dynamometer)
(1 point each). 10, 25, 50, 75 and 100. 5

The results of this test item will indicate ability in special skills which are needed in some sedentary types of constructive assignment, such as clerical duties. These do not require a great amount of body strength and many can be done at the wheelchair level of function.

Procedure—This item is performed with the member seated at a desk or table.

Element (a)—Tie—Tie and untie shoelace.

Fold—Fold towel twice.

Sort—Sort filing cards, alphabetically.

File—With alphabetical file cards, pick out specific letter and put on top. Pick another and put on bottom.

Write—Write name and two days of week.

Element (b) and (c)—Scores indicated on hand dynamometer.

Scoring

A reading of over 10 on element (b) and (c)

rates 1 point; over 25, 2 points; over 50, 3 points; over 75, 4 points and over 100, 5 points.

Maximum Total, Item 1, 20 points.

ITEM 2. SITTING (Fig. 2) POINTS

- a. Weight placement at table. Six three-pound weights from left to right side 5
and back (5 repetitions)

This item requires a greater amount of strength, coordination and endurance of the upper extremities and will indicate physical ability to do certain kinds of bench work (appliance repair, instrument repair, etc.).

Procedure—This item is performed with the member seated at a desk or table.

Element (a) Six three-pound dumbbells are to be placed on specific spots on the table. All of the dumbbells are to be moved from right to left with the left hand and from left to right with the right hand. When all six dumbbells are returned to the original positions, it is scored as one repetition. This element requires five repetitions with each hand.

Scoring

One-half point for each successful repetition.

Maximum Total, Item 2, 5 Points

ITEM 3. STANDING: (Fig. 3) POINTS

- a. Free standing (2 points each) 5, 10, 15,
20 and 25 minutes 10
- b. Standing, lift and hold, 10 seconds (2
points each) 5, 10, 20, 30 and 40 pounds 10
- c. Stoop and bend (pick up, move 3 feet and
deposit) (2 points each) 5, 10, 20, 30 and
40 pounds 10

This item relates to assignments which require standing, lifting and carrying, i.e. warehouse, laundry or gardening.

Procedure

Element (a)—Standing time is fulfilled as member waits his turn for other items.

Elements (b) and (c) are performed with weight plates in a wooden box. The therapist instructs in techniques of lifting if necessary. Member must bend, pick up weights and come to a fully erect position.

Scoring

Element (a) — Standing over 5 minutes scores 2 points; over 10 minutes, 4 points; over 15 minutes, 6 points; over 20 minutes, 8 points; over 25 minutes, 10 points.

Element (b) — Two points are scored for each of the weight increments lifted.

Element (c) — Scored as in element (b). Each element, 10 points.

Maximum Total, Item 3, 30 Points

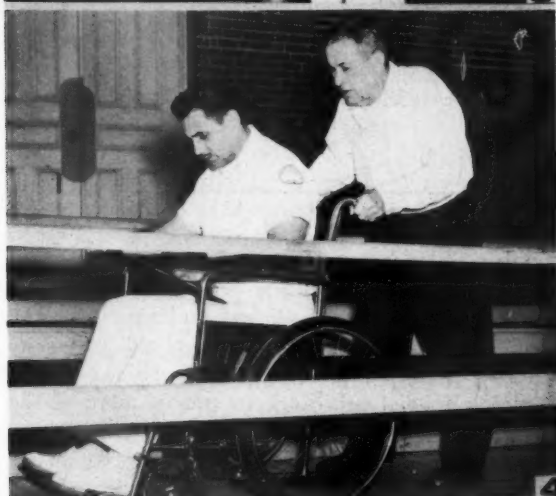


Fig. 3 Testing Ability to Lift and Hold With Weight Plates in a Box

Fig. 4 Testing Ability to Push Wheelchair up a Ramp

ITEM 4. CLIMBING AND DESCENDING STAIRS: (Fig. 5)

	POINTS
a. With hand rail	5
b. With no rail	5
c. Carrying 20 pounds	5

This item is performed to indicate ability to walk up and down stairs and to function as messengers or guides.

Procedure

This item is performed on a practice 5-step staircase in the clinic. Each element involves going up and down one time. Element (c) is done with the member carrying a 20-pound

dumbbell; use of handrail is optional. There is no rest period between elements.

Scoring

Each element — 5 points.

Maximum Total, Item 4, 15 Points.

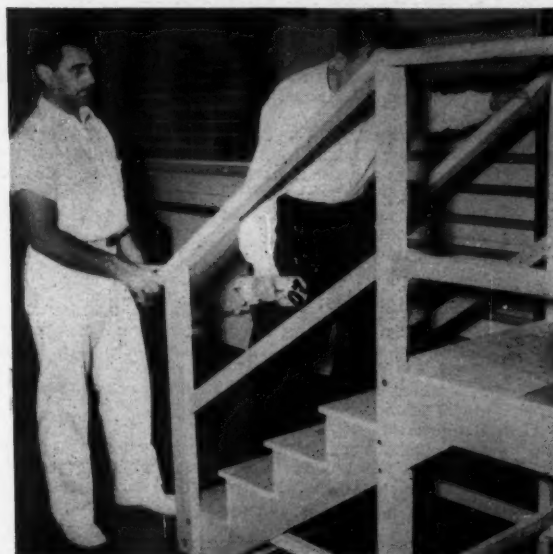


Fig. 5 Testing Ability to Climb Stairs Carrying a 20 lb. Dumbbell

ITEM 5. WALKING: (Fig. 4).

	POINTS
a. Free walking (1 point each) 50, 100, 200, 500 and 1000 yards	5
b. Carrying (1 point each) 2, 5, 10, 15 and 20 pounds (50 yards)	5
c. Pushing and pulling on level in wheel chair, 100 yards (2 points each) 20, 50, 100, 150 and 200 pounds	10
d. Pushing and pulling up and down ramp (2 points each) 20, 50, 100, 150 and 200 pounds	10

This item is given to show the member's fitness to perform tasks involving ambulation (walking endurance, pushing and pulling).

These abilities are necessary in assignments such as pushing trash carts, wheel chairs and linen carts.

Procedure

Elements (a) and (b) are carried out in the clinic. In element (b) weight plates are carried on a weight spool with handle attached. Elements (c) and (d) are performed on a wooden ramp outside of the clinic. The length

PHYSICAL FITNESS ADMINISTERED BY CORRECTIVE THERAPY—PM&R SERVICE

Maximum Total Score — 100 Points

	Points	Score
1. Hand Finger—Strength and Dexterity		
a. Tie, fold, sort, file, write (2 points each)	10	6
b. Hand grip, left (hand dynamometer) 1 point each). 10, 25, 50, 75 and 100.	5	3
c. Hand grip, right (hand dynamometer) 1 point each). 10, 25, 50, 75 and 100	5	0
2. Sitting		
a. Weight placement at table. Six three-pound weights from left to right side and return (5 repetitions)	5	2½
3. Standing		
a. Free standing (2 points each) 5, 10, 15, 20 and 25 minutes	10	6
b. Standing lift and hold, 10 seconds (2 points each) 5, 10, 20, 30 and 40 pounds	10	4
c. Stoop and bend (pick up, move 3 feet and deposit) (2 points each) 5, 10, 20, 30 and 40 pounds		
4. Climbing and Descending Stairs		
a. With hand rail	10	2
b. With no rail	5	5
c. Carrying 20 pounds resistance	5	0
5. Walking		
a. Free walking (1 point each) 50, 100, 200, 500 and 1000 yards	5	0
b. Carrying (1 point each) 2, 5, 10, 15 and 20 pounds (50 yards)	5	5
c. Pushing and pulling on level in wheelchair, 100 yards (2 points each) 20, 50, 100, 150 and 200 pounds.	5	1
d. Pushing and pulling up and down ramp (2 points each) 20, 50, 100, 150 and 200 pounds.	10	2
6. Remarks		
Hemiplegia, right, partial expressive aphasia. Patient walks with a cane in left hand and wears a brace (drop foot) on the right leg.		
Date Age: 62	Signed C. T.	
	100	36½

Table 1. Sample of a Completed Test

of the ramp is 56 feet, with an elevation differential of 3½ feet.

Scoring

Elements (a) and (b) score 5 points each.

Elements (c) and (d) score 10 points each.

Maximum Total, Item 5, 30 Points.

ITEM 6. REMARKS:

This item may include such observations as: the member's ability to propel a wheel chair; individual areas of specific disability (blindness, deafness, etc.); and the use of braces or prostheses.

A completed test is shown as Table 1.

The point system of scoring was devised to show at a glance areas of physical function in which the

member shows adaptability to specific assignments. The maximum total score is 100 points. A member of average general strength and endurance, for the age group of most of the members tested, will score 60 to 100 points. A member whose total score is 30-40 points is obviously weak in two or more of the items tested and a glance at the score column or the remarks item will indicate wherein this weakness lies and wherein his physical capacity is adequate. It should be noted that the point system used in scoring the test is related to the constructive assignments established at this Station. A total score of 100 does not mean the member is a perfect physical specimen but rather he would be considered capable of performing

Cont'd on Page 20

Month	Year	Number Tested	Average Age	Average Score
December	1956	57	64.0	76.4
January	1957	95	60.7	73.2
February	1957	102	61.4	72.1
March	1957	72	60.7	68.6
April	1957	71	58.8	65.1
May	1957	87	59.2	64.6
June	1957	66	59.8	61.1
July	1957	167	60.4	68.3
August	1957	241	58.9	77.6
September	1957	69	61.2	74.3
Total		1027		

The average age of the 1027 members tested was 60.5 years and the average score was 70.1 points.

PRESENT-DAY ADJUNCTIVE THERAPY IN A HOSPITAL SETTING*

RALPH CRAWSHAW, M.D.**

A pressing and immediate problem for all of us concerned with mentally ill people is to know what treatment patients receive in psychiatric hospitals. We know that a large number of psychiatric patients enter hospitals, receive treatment, get well, and leave. But how a change is brought about defies a ready answer. We know that tranquilizing pills are given, shock treatment prescribed, psychotherapy carried out, but in few cases do we have a clear understanding of why the patient has changed for the better. Not only do the treatment modalities vary from institution to institution, but also within institutions; from section to section, there may be differences; and from person to person the differences in effective treatment for patients may be great. It is impossible to study adequately all of the available therapies, but attempts can be made to clarify the effectiveness of some. At The Menninger Foundation we have addressed ourselves to the problem of understanding better one of the accepted psychiatric treatments, *adjunctive therapy*. We have attempted to clarify what adjunctive therapy is, what it does, and what it should be expected to do. From the experience of our study, I would like to give you my idea of the necessary ingredients in effective adjunctive therapy.

Our hospital is a 113-bed, active-treatment psychiatric hospital, which carries in addition approximately 40 to 60 day patients. There is an adequate staff of physicians, psychologists, social workers, and nurses, as well as adjunctive therapists. We consider those staff members who are concerned with the activities of the patients which would correspond to their work and play in normal life as adjunctive therapists. They number about 27. The adjunctive therapists include those with training in the manual crafts, sports, recreation, creative arts, group social activities, academic activities and physical therapies.

As part of a widespread network of projects intended to increase our understanding of adjunctive therapy, the following approach was developed: A working psychiatric team was established about one clinical problem. Then a body of knowledge through mutual clinical experience could be developed to de-

fine the task of the adjunctive therapist. I chose one of my patients as the subject, and sent a memo to all personnel who might be at all interested in this particular patient. The memo stated that on Thursdays I would hold a meeting in the private dining room to discuss Miss S.'s treatment. I chose the lunch hour, since in our busy schedule there appeared to be no other time mutually available. It was not obligatory for anyone to come, since I was after those feelings and considerations of the A.T. which could be given only voluntarily without the implied coercion of a directive. On the other hand, I was not offering free lunch, either.

Now, to go back a bit to the patient, since it is my belief that the clearest understanding obtainable by clinicians is in terms of the clinical material: the patient is a 34-year-old, unmarried woman, who came to our Hospital in 1955 after seven years of psychotic illness—paranoid schizophrenia. She is the youngest of three children, having two older brothers both of whom are married and have made satisfactory adjustments. Her father is a retired successful business executive, and the mother remains active in many social and community affairs. The patient was a shy, retiring child, who made a superficially satisfactory adjustment throughout high school, and in college was an excellent student. Following graduation, she became a secretary, and while on a trip to Europe with her father, she developed the onset of her present illness. Confusion, withdrawal, and paranoid thoughts became apparent. Since 1948, she has been continually under some type of psychiatric treatment, which has included psychotherapy, group therapy, insulin shock and electroshock, and tranquilizing drugs. When she came to our hospital in 1956, she felt that there was little hope left for her and expected to be lobotomized. She had numerous tics, talked loudly to herself, showed little interest in the world about her, had poor personal hygiene, and was openly psychotic. On a program of milieu therapy, intended to give her structure and to open some avenues of gratification to her, she showed some slight improvement. An attempt at psychotherapy was unsuccessful, and our goals in simplest terms are to help her establish herself outside of an institution. Because of the length and depth of her illness, our therapeutic efforts are limited, rather than trying to return her to her rela-

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tively high achievement prior to the onset of illness.

I chose the patient because of our goals, which were discrete—to discharge her from the hospital in a manner which would allow her to maintain herself in a Family Care Home. Second, the patient was well-known to the staff. Third, the patient had not shown any great swings of improvement or regression, had simply shown a slight progress through the treatment. And fourth, the patient was seen by the staff in so many different ways that no consistent picture of her was being reported.

In the first meeting our clinical team had little difficulty getting started. After the discussion warmed, some interesting questions came up which apply more to team operation than to the patient. One question was: What had they done wrong? It appears that one of the natural reactions for the staff upon learning that a meeting has been called is to feel that they have done something wrong. Other reactions included questioning the fairness of spending so much time on one particular patient and discussing the added responsibility that these meetings gave the staff. Though the questions are interesting, they are digressions from our primary problem, which is understanding the adjunctive therapist.

Based on the experience of these regular team meetings, I can elaborate my own clinical impression of the adjunctive therapists with whom I work, how they succeeded or failed, and the lessons we learned. First, underlined in my mind was the clear appreciation the adjunctive therapists have of the importance of how they conduct themselves with the patient. This is sometimes called "the use of the self." It is often not easy for an individual to discuss himself in a group, but we were not long in reaching the point where the A.T. could ask if he were right or wrong in certain approaches. The emphasis never was on the patient's accomplishment in the craft; the emphasis always remained on what the patient was doing with the adjunctive therapist, sometimes directly and sometimes through the craft.

As a result of our experience, there appear to be certain qualities or principles which could be seen in the A.T.'s' work. These principles all lead to enriching their relationship with the patient and enhancing her treatment.

The qualities which clearly were part of the work of the successful A.T. can be placed under two general headings. The first is proficiency in his craft or special skill, and the second is a degree of competency in interpersonal relationships, often referred to as "the use of the self." The first, competency in the specific skill or specialty, is indispensable. If the adjunctive therapist does not know his gross work, he

will not be free to go beyond the work in dealing with the patient. The craft should become an ingrained part of the occupational therapist, and, as all good tools, a help, not a hindrance, in doing his job. It is not my feeling that the A.T. need be competent in all aspects of his field, nor a perfectionist in any particular part; he should be well-grounded and secure in the general mechanics of his operation so that he can be free to do his most essential job, working with patients.

Under the second heading, competency in interpersonal relations, the effective A.T.'s were capable of observing in a sophisticated fashion, communicating intelligently, willing to interact with the patient, and possessed of a sense of professional dedication. Rather than leave these qualities as a list of words, I can enlarge upon them from our team's experience.

Observation in its simplest form means merely looking and listening to what is going on. This is not enough; the A.T. should know what he is looking for, and at the same time be ready to see or hear the unexpected. The A.T. must know something about the patient, and he must know what the doctor is looking for as well. One of the reasons I chose our patient was the varied picture she presented to different people, and few of the A.T.'s realized how differently she was seen by the staff. After a few meetings, they clearly understood that I was interested in knowing how much mumbling and talking to herself the patient did. We came to call this symptom "static," since it literally had somewhat the quality of static on a radio. The patient could be talking, but at the same time carrying on a slight undertone of mumbled words. Early in the patient's stay, she would do this with me, but as the treatment progressed, it left our relationship. I was interested to see where it was still appearing. I was not receiving many reports, if any, about this symptom, since some of the A.T.'s did not think of the trait as important, they observed it so frequently, and felt that all people did. Other A.T.'s were not reporting the static because it happened so infrequently in their contacts with the patient. When they learned that I considered it important as a distorted expression of hostility, they began looking for it in that context. The observation of the patient's mumbling now began to have psychological meaning for the A.T.'s, and more important, gave the A.T.'s a deeper insight into the patient, which in turn allowed for a closer relationship. For me to know where the static was occurring proved valuable, since I could continue working with the patient in terms of her presenting symptoms, which superficially she kept out of our relationship. The observation had gained more meaning for all of us.

Another quality of great importance is the ability to communicate freely. Often the A.T. can feel that he does not have adequate opportunity to communicate, since the doctor's ear may not be readily available. I would not say that this is an unjustified feeling, but best considered by examining carefully what the A.T. is prepared to do when he does have the doctor's ear. In our team meeting, we discussed the fearfulness on the part of the A.T. to report. The staff, as they grew freer, investigated why the meetings had been called; were they doing something wrong? The implication they gathered by my request for communications was that they had done something wrong. They felt that the fact that someone took an interest in their work was based on some shortcoming that they had brought about, rather than on a genuine desire to implement the patient's treatment. This may not be true of other settings or other teams in our setting, but it was true that our A.T.'s acknowledged a certain defensiveness in their communications. Another point in communication is to be aware of how much the communication can contain the A.T.'s problem rather than the patient's problem. Thus, a number of questions asked about the patient and her routine, at first glance appeared to be merely inquiries about schedule. They persisted for a while, and it gradually became clear that the question was being asked by the A.T.: Why is the patient not coming to my shop more frequently? Is it because she does not like me? Again, this was not explicit in the question, but it was the repeated feeling of the A.T. in the communication; and when the A.T. learned that the patient accepted the shop and the work in her own particular fashion, the A.T. no longer felt the necessity of asking the detailed questions about the patient's routine. Our A.T.'s were also alert to another quality implicit in communication, and that is the idea that it is two-way (and I would underline this, if I can,) that the A.T. has to learn what the doctor means when he says certain things. It is important that the A.T.'s remain alert to the doctor's communications, so that they can not only understand the concrete suggestions implicit in what the doctor says, but also his style; they can know his feeling about why he says what he says. This implies a certain amount of relaxed interplay between the doctor and the A.T. so that the A.T. can explore the communications pertaining to the patient.

Still another point connected with intelligent communication is the ability to give unfavorable reports when they are indicated. On the weeks when our patient did not do well, it was apparent in the reluctance of the group to come to grips early in the meeting with reports that she had not done well. If her

difficulty could be connected to a specific incident, a visit from her family or a premeditated change, the report came easily; however, when the A.T. felt a report must be given in terms of his observations and judgment, it took a while to break the ice. However, as individuals found the group in accord with their viewpoint, the exploration of the patient's difficulty never proved hard to carry through. It is necessary for the successful A.T. to communicate material which may sound unpleasant to others, including figures of authority. If he falters, treatment suffers, and the patient may not improve.

An indispensable quality the successful A.T. must develop is a willingness to interact with patients. Somewhere in his makeup, he must be interested in people, how they get well, and what he can do to hasten the process. The A.T. need not like all people, nor should he feel that he has to interact with all people. Part of his maturation is his growing awareness that there are some patients with whom he just cannot be useful, and with these patients, the work can be left to other A.T.'s. However, to the patients with whom he can comfortably interact, he has the opportunity to be of great assistance. By "interact," we can mean many things, but a clinical example may serve to clarify it for you. In dealing with the patient's symptom of mumbling, her static, I encouraged some of our team to respond by directly remarking on the symptom in a way which would recognize with the patient the presence of the symptom. One A.T. was quite reluctant to carry through on my suggestion. He pointed out that she was psychotic and might regress. He wondered whether or not she actually could stand it, and finally said, "I don't know whether I could stand it." He waited a few weeks, and then, after mulling it over, felt a little more comfortable interacting this way with the patient. Quite spontaneously one day, while they were working in the shop together, he found that she was mumbling, and he said, "I know that you are talking, but I can't quite get the words." The patient's response, the one he expected to lead to regression, was: "Oh, thank you. I know I talk to myself at times and that I shouldn't. I appreciate your telling me." The patient could accept his intervention, because it came from someone who conveyed in his words, tone, and attitude the genuine interest he had in her. For the A.T., it represented a freedom within himself he had achieved by his own work. There was no one there who prompted him in his action; it came spontaneously from his willingness to interact with the patient.

One other example, so that you are not left with the feeling that I mean active interaction is always indicated: too often our intractions with patients serve

only to infantilize them, and it sometimes is difficult to resist an active intervention. On a trip to town with an A.T., our patient became mildly excited while shopping, and in the course of paying for a purchase, she turned her purse upside down on the counter to get her money out. The A.T. was tempted to intervene immediately and handle the situation for the patient, but because she knew the patient and knew the patient's wish to handle the trip well, she paused long enough for the patient to regain her composure and handle the situation adequately. The interaction in this case was the support the patient felt from knowing that the A.T. was standing by and should the situation need the A.T.'s help, it would be there. The patient was left with the proper latitude in which to operate and develop. The A.T. had proved herself willing to interact in this way.

Lastly, the A.T. should have a sense of professional dedication. Though this means a general wish to do good for others, it has a more specific meaning, too. Sometimes, and often too frequently, the difficulties the A.T. may have in his interpersonal relationships with patients stem from a lack of conviction on the part of the A.T. that his work is important. I have not stressed any one quality over the other, for it is for each person to find which quality is most important to him. However, the quality of the A.T. which is most often overlooked in his training, and later in his own professional development, is the sense that he is carrying through work that is necessary for the health of others. Though examples may be drawn from our immediate clinical material, the most apparent example to all of you has been the negative

example in the form of cynicism. The A.T. of long experience who has come to think of his work as necessary, too frequently belittles it himself. The successful A.T., as he matures, must come to see his work as a profession in which the whole is greater than the parts. As he can develop an identity for himself which is greater than each day-to-day experience, he will influence profoundly not only himself, but also the patients he treats. It is a quality which is difficult to pin down, or to teach, and impossible to standardize; yet it is real, personal, and extremely valuable. It is a sense of professional self-assurance and perspective which not only can be relied upon to carry the therapist through the immediate problems of patient care, but also gives him the long-range view necessary for a mature approach.

Our patient has shown an improvement. She is no longer an in-patient, and I would place most of the responsibility for this success on the shoulders of the A.T.'s, who have shown not only their skill in a particular craft, but also keen observation, intelligent communication, a willingness to interact with her, and a persistent drive to know more about their jobs, so that they can do them better. In present-day adjunctive therapy, these qualities are essential.

Though the settings may differ from hospital to hospital, section to section, it is my belief that those patients who are treated by A.T.'s operating with these qualities can get better. The A.T. makes a unique and powerful contribution to the patient's welfare, and the value of the A.T.'s help comes directly from his own high personal and professional standards.

FITNESS TEST (Cont'd from P. 16)

the most difficult constructive assignment allocated to him.

CONCLUSIONS

It is felt that these tests have given valuable information to the physician member of the Activity Planning Board and have mutually assisted the member and the Center in making the program of constructive assignments more effective. It is hoped that this testing procedure will stimulate further useful research in the field of geriatric rehabilitation.

The writers extend to Robert Buckle, M.D., Chief Domiciliary Medical Service, and Clarence Gaskins, Chief Medical Illustration Laboratory, their appreciation for the cooperation and assistance received in the preparation of this paper.

SECOND TRI-ORGANIZATIONAL CONFERENCE

- Association for Physical and Mental Rehabilitation
- Association of Medical Rehabilitation Directors and Coordinators
- Am. Association of Rehabilitation Therapists

AMBASSADOR HOTEL
ATLANTIC CITY, N. J.

JULY 19 - 25, 1958

"From Other Journals"

H. HARRISON CLARKE, "Muscular Strength-Endurance Relationships." *Archives of Physical Medicine and Rehabilitation*, 38:584-586, September, 1957.

The following relationships exist between strength and isometric muscular endurance: (1) The amount of resistance required to induce muscular exhaustion varies among individuals, depending on the strength of the muscles involved. The amount of resistance for each individual is a proportion of that strength; (2) The work output of muscles in exhaustion performance is greater when they are in position to apply greatest tension at the point of greatest stress; (3) A specific combination of load and cadence is required to produce maximum work output; (4) The strongest individuals have the greatest absolute endurance; (5) Fatigue reduces a muscle's ability to apply tension. The amount of that reduction indicates the degree of fatigue; (6) The rate of recovery from muscular fatigue is increased by muscle condition and by general body movements; (7) Muscular fatigue patterns can be revealed by strength decrements of individual muscle groups; (8) Strength decrements may be used to determine total-body muscular fatigue resulting from activity.

HALBERT L. DUNN, "Points of Attack for Raising the Levels of Wellness." *Journal of the National Medical Association*, 49:225-235, July, 1957.

Health is a state of complete well being. Its enjoyment is a fundamental right. The health of all peoples is fundamental to peace and security. In the last 300 years the population of the earth has increased almost five fold. In the U. S. the primary reason for this population growth is the downward trend of the death rate. Our population is steadily growing older, largely as a result of more lives being saved in the earlier years of life. The female death rate is declining more rapidly than that of males, leading to social, medical and health problems not yet clearly recognized. There is an increasing concentration of population in the urban areas and an increase in the number of women in the labor force. The great challenge is to keep a person fit until he dies, functioning in and contributing to society. Research on the effects of stress and body tensions appears of great importance, but psychology and psychiatry probably offer the greatest promise for understanding levels of wellness. The most baffling problem in such research is that we have no easy way to recognize and describe wellness. Promising points of attack for raising the levels of wellness include measures to improve wellness in family living and community life, education, human relations, leadership, communication and access to information, creative expression, altruism, maturity, and longevity.

MEYER NAIDE, Prolonged Television Viewing as Cause of Venous and Arterial Thrombosis in Legs. *Journal of the American Medical Association*, 165:681-682, October 12, 1957.

While watching TV programs, a viewer may sit for hours in a relatively static position. This creates a favorable situation for the development of venous and arterial thrombosis, particularly if there is compression of the popliteal vein. TV viewers should get up and move about at least once an hour in addition to moving the legs frequently. Girdles and other tight garments should be removed prior to prolonged TV viewing.

R. BARBOR, "Tendo Achilles Rupture After Hydrocortisone Injection." *British Medical Journal*, No. 5042: 471, August 24, 1957.

The tendo achilles of a female sprinter ruptured after injection of hydrocortisone. If this is a common occurrence it means that the old treatment of deep transverse friction is the best for strains to the tendo achilles.

DOUGLAS HUBBLE, "Some Principles of Homeostasis." *Lancet*, II:301-305, August 17, 1957.

The word homeostasis was invented by Cannon and denotes the constancy of the body's internal environment. The homeostatic mechanisms are evolutionary mechanisms established for survival in and adaptation to conditions of cold, hunger, thirst and injury. They are not concerned with disease and assist therapeutic attempts only when disease mimics one of these primitive situations, as in hypoglycaemia. When the consequences of homeostasis are vital to survival, the body has at its command several different mechanisms, some of which are designed for immediate use (as adrenaline in the reaction to hypoglycaemia) and some of which are used to meet a situation which may be indefinitely prolonged (as diminished insulin action in hypoglycaemia). In states such as diabetic ketosis the homeostatic mechanisms may actually worsen the situation. The cellular metabolism of protein in which an excess of protein anabolism over protein katabolism permits growth is better described as an equilibrium resulting from hormonal influences than as a homeostasis. In disease states the hormones least important for survival disappear first; those most important are tenaciously preserved. While homeostasis implies fixity of internal environment, it is maintained only by constant changes within the bodily processes. Movement, not stasis, is both the condition and sign of freedom.

THEODORE G. KLUMPP, "Control of Fatigue in Older Persons." *Journal of the American Medical Association*, 165: 605-607, October 5, 1957.

Fatigue is the most prevalent limiting factor in the pursuit of a useful way of life by the older person. It is an almost universal symptom of disease; sometimes it is the only complaint. In the absence of specific disease, fatigue of older persons results principally from (1) diminution of organic reserve; (2) decline of endurance; (3) atrophy of disuse; (4) loss of motivation, and (5) decline of endocrine activity. It can be alleviated by reducing the patient's activities or by increasing his tolerance to fatigue. Rest is not a universal panacea. In the U. S. we tend to suffer from atrophy of disuse. Functional capacities are maintained only through use and can be augmented only through repeated stress. The most effective approach to the fatigue of old age lies in prevention through maintenance of an adequate neuromuscular reserve. The physician must see that the patient gets adequate exercise and adequate sleep. Reduction of overweight warrants special emphasis. Administration of hormones may be of value. There is no reliable correlation between how hard a person works and degree of fatigue. Fatigue frequently has its origin in boredom and loss of incentive. A new and absorbing interest is the only salvation for these patients.

B. M. CORMIER, E. D. WITKOWER, YVES MARCOTTE AND FRANCOISE FORGET, "Psychological Aspects of Rheumatoid Arthritis." *Canadian Medical Association Journal*, 17:533-541, September 15, 1957.

Rheumatoid arthritis is multicausal in origin. Emphasis on specific factors fails to do justice to the complexity of the problem. It is a stress disease and represents a maladaptation to psychobiological stress. A study of a group of rheumatoid arthritics and their nearest siblings showed that in childhood the patients were overactive and impulsive. Frequently they participated in sports to the detriment of intellectual learning. As they became older signs of inhibition appeared, with obsessive-compulsive traits displayed. Motor activity was abandoned as a means of expressing instinctual drives and of defending against them. They then relieved their aggression in fantasy. This gave rise to feelings of guilt and anxiety, which preceded and probably precipitated the onset of rheumatoid arthritis. In the acute phase of the disease the role of the psychiatrist is limited, but during the recovery phase analysis of the emotional conflicts underlying motor inhibition improves the chances of recovery and may prevent permanent disablement. An awareness and understanding of the emotional problems underlying the disease and resulting from it by all members of the therapeutic team seems to improve the chances for recovery.

J. BOOYENS and W. R. KEATINGE, "The Expenditure of Energy by Men and Women Walking." *Journal of Physiology*, 138:165-171, 30 September 1957.

Most observations of the expenditure of energy when walking have been made on men. The expenditure of energy while walking by ten men and ten women was measured to find the range of individual variation and whether a sex difference exists. At speeds of 5.47 km/hr and 6.44 km/hr women expended significantly less energy than did men. This seemed to be related to the fact that men took a longer stride, which increased the distance which the pelvis was raised and lowered at each step. At higher and lower speeds there was little difference. Individual expenditure of energy showed considerable variation. Muscular training and efficiency, weight of clothes, particularly shoes, differences in posture and rhythm of movement all affected the energy expenditure.

ARNOLD H. KEGEL, "Early Genital Relaxation," *Obstetrics and Gynecology*, 8:545-550, November, 1956.

Approximately one-third of all women suffer from genital relaxation. Muscle education and resistive exercise offer lasting relief. The pubococcygeus is the key muscle of the entire pelvis. Normally it is the largest and strongest muscle in the female pelvis. Relief is to be expected only when it is activated. The muscle must be identified for the patient and she must be taught to exercise with a perineometer inserted in the vagina to furnish resistance.

PJR

TARO FURUKAWA, "Properties of the Procaine End-Plate Potential." *The Japanese Journal of Physiology*, 7:199-212, September 30, 1957.

The effects of procaine on various aspects of neuromuscular transmission were analyzed with the aid of intracellular electrodes. At least three factors are involved in the blocking action of procaine: (1) lowered sensitivity of end-plate membrane to ACh; (2) decrease in output of ACh from the nerve ending and (3) lowered excitability of the muscle fiber membrane. The first appears to be the most important factor in producing neuromuscular block, and the third appears to be the least important.

CARDIOVASCULAR (Cont'd from P. 12)

L. A. Larson²¹ found a factor loading of (-.7073) for the change in pulse rate from lying to standing in his 1939 factor analysis of cardiovascular variables. The Barach Index was negatively correlated with splanchnic tone (-.5432), the low raw score of the Barach Index indicating good relative condition. Crampton's test itself gave a weighting of (0.7074) to indicate circulatory ptosis was being measured.

Mary Agnes Murphy's²² factor analysis, 1940, shows what she calls "Vasomotor Tone" in her factor V but she also has some elements of it in her Factors VI, VII, VIII and XI, all of which could probably have been resolved into one component if the factoring and rotating had been carried as fully as possible into simple structure.

Benjamin H. Massey²³ and his colleagues have produced the best proof that splanchnic tone is related to athletic performance. They correlated the decrements between lying and standing, lying and sitting, and sitting and standing changes in the brachial pulse

ERNST JOKL, "Neurological Case Histories of Two Olympic Champions." *Journal of the American Medical Association*, 165:129-131, September 14, 1957.

Harold V. Connolly, Olympic and world hammer throw champion, suffers from a combined upper and lower left brachial plexus paralysis, resulting from an injury at birth. The psychological and social conflict with which this disability confronted Connolly from earliest childhood has provided the motivation for compensatory adjustment by the achievement of distinction in athletics and in academic studies.

In 1936 Karoly Takacs represented Hungary in pistol shooting in the Olympics. In 1938 his right arm was amputated between the elbow and wrist. He began shooting with his left hand and won Olympic and world championships. This indicates the extent to which an established neuromotor pattern and its sensory counterpart can be projected into previously untrained skeletomuscular areas, a matter of great significance for functional rehabilitation after major disablement.

C. H. WILLIAM RUHE, "Effect of Hypothermia on the Brain." *Report 57-104. Air University, School of Aviation Medicine, USAF*. July 1957.

Previous experiments indicated that in hypothermia produced by refrigeration, death of rabbits was due primarily to the effects of low temperatures on the brain, perhaps specifically upon the respiratory center. Other studies showed that re-warming humans by immersion in warm water resulted in an initial further drop in central temperature. In the present study one group of rabbits was cooled to the point of impending death by immersion in ice water and were re-warmed by warm water immersion alone; a second similar group was re-warmed by immersion in warm water plus direct warming of the head by diathermy. Diathermy prevented the fall in brain temperature and brain re-warming was accelerated. While this did not assure successful resuscitation, it appeared to improve the chances for success.

Unless noted otherwise, all abstracts have been prepared by Philip J. Rasch, Ph. D.

wave (sphygmogram) taken on the Cameron heartometer with the time of an 880 yard run and found significant correlations. Recent practice among athletes has been to warm-up at least 20 minutes to get as much blood as possible out of the splanchnic and some have used ice packs on the lower abdominal region.

Overcoming Splanchnic Ptosis

It has been demonstrated that young athletes in good fitness have standing pulse pressures and pulse waves as good as in the quiet sitting position. Older people, and especially those in sedentary work, show much splanchnic ptosis. Vigorous use of the legs in walking or running, swimming in cool water, or upside down exercises with legs up in the air help to remove splanchnic ptosis. The veins can be reconditioned by avoiding static standing; also by pushing upward against a stall bar while lying on the back, tensing 2 secs., relaxing 5 secs. in a repetitious rhythm; and by vigorously retracting the abdominal muscles along with deep breathing.

(To be Continued)

Research

A STUDY TO ASCERTAIN THE EFFECTS OF THORAZINE ON CHRONICALLY REGRESSED SCHIZOPHRENIC PATIENTS RECEIVING ADAPTED PHYSICAL EDUCATION*

Dana Bamford
Donald W. Swan**

The purpose of this study is to determine if adapted physical education is rendered more effective by the use of Thorazine.*** The following three hypotheses were tested:

1. Social changes will be more pronounced in those patients receiving Thorazine than in those patients not receiving Thorazine.
2. The patients receiving Thorazine will display greater motoric changes than those patients not receiving Thorazine.
3. Patients receiving Thorazine will have more positive intergroup relations than those not receiving Thorazine.

The results of this experiment may demonstrate that the effectiveness of adapted physical education on the mentally ill can be increased by concurrent treatment with Thorazine.

The following limitations should be considered when this study is interpreted:

1. This study was limited to sixteen patients at the Northampton Veterans Administration Hospital.
2. This study was limited to chronically regressed schizophrenic patients.
3. Because of the nature of their illness the patients could not always be depended on to cooperate.
4. The adapted physical education program consisted of two one and one-half periods a week for eight weeks.

In the literature of adapted physical education as applied to the neuropsychiatric, it is repeatedly emphasized that it is not the exercise *per se* that is the important objective, but rather the exercise is simply a means to the establishment of interpersonal relations. This concept is brought out by Timmerman, Knudson, and Kramer and Bauer in studies with hydrotherapy, by Freeman in a study with weight training, and by Cady and Souza, and Kramer in studies involving exercise.

Research with Thorazine in connection with the

*Abstract of a thesis presented to the Faculty of Springfield College in partial fulfillment of the requirements for the degree, Master of Science, June 1958.

**Corrective Therapist, V.A. Hospital, West Roxbury, Mass.

***Chlorpromazine Hydrochloride; Smith, Kline and French Laboratories.

neuropsychiatric patient is relatively new. Most of the literature contains statements as to what this drug can do, but these conclusions are usually the results of clinical observations and not experimentation. Winkelman and Elkes in individual studies have reported the results of the drug *per se* on the individual, while Lehmann and Hanrahan in a study of eight psychotic patients reported a series of motoric findings.

Sixteen chronically regressed schizophrenic patients were selected to participate in this experiment. The patients were from the same closed ward of the hospital, and had a diagnosis of schizophrenia. Their average age was 53.6 years, and the length of hospitalization averaged 18.8 years.

The writers used four methods of recording the effect of the adapted physical education in the experiment:

1. Northampton Activity Rating Scale.
2. Intergroup Relations Scale.
3. Motoric Tests.
4. A subjective study of the patient's behavior during the activity periods.

The Northampton Activity Rating Scale is an objective method of recording the behavior, attitudes and actions of mental patients. This scale was administered at the beginning of therapy, at the end of the third week, and again at the end of therapy.

The rating of intergroup relations was accomplished by the use of a nine item ranking scale administered at three levels: pre-therapy, mid-therapy and post-therapy. This scale was adapted by the writers after consultation with the clinical psychology department of the Northampton Veterans Administration Hospital.

Two motoric tests designed by the writers were administered at two week intervals. The first was a test of alternating arm jabs with the number of repetitions per minute constituting the score. The second was a test of basketball goal shooting. This test consisted of shooting baskets for a one minute period. The number of basketball goals made by each patient was noted.

A day by day log of the patient's reactions within the adapted physical education program was kept by the writers to determine any characteristic changes and trends that occurred during this period of therapy.

With the Northampton Activity Rating Scale, the scores obtained by the individuals were compared with each other on a pre-mid, mid-post and pre-post basis. A positive score was given for any movement down the scale. The totals were then added to obtain

the overall change. The mean differences of the two groups were then treated statistically by a one tail distribution test to ascertain any statistical difference.

With the Intergroup Relations Test the patients were divided into two groups. Each group contained four experimental and four control patients as selected by the hospital medical staff. The patients were then ranked according to their position within the group with respect to the particular trait. Any movement up or down the scale was then noted for each of the testing periods. The number of position changes for each patient was then secured. A positive score indicated improvement and a negative score the opposite effect. The mean difference of the two groups was then treated statistically by means of a one tail test to ascertain any significant difference.

With the motoric test of jabs the patients were tested every two weeks by the writers. The difference in scores was used to indicate an increase or decrease in motoric function. The mean difference was treated statistically to ascertain any significant results.

The percentage of basketball goals scored and attempted by the control and experimental groups was computed. The results were analyzed by observation, but were not treated statistically.

The subjective day by day record of the patient's activities was used to show any trend or results which the group actions indicated in the program. The combined opinion of the two writers was used in this section.

Sixteen chronically regressed schizophrenic patients were studied in order to determine if a program of adapted physical education was rendered more effective by concurrent use of Thorazine. Special consideration of social changes, intergroup relation changes, and motoric changes were tested by means of an experimental and a control group.

Four methods were used to record the effects of this study. They were: twenty-five selected items from the Northampton Activity Rating Scale, an intergroup relations scale consisting of nine items, motoric tests of speed and coordination, and a subjective record of the two groups within the adaptive physical education program.

The results indicated that there was marked improvement from pre-to-post therapy in those patients in the experimental group, while those patients in the control group remained basically the same. The t for this comparison was 2.65, which is significant beyond the .05 level of confidence. The greatest improvement took place during the latter half of the experiment. A t of 2.04 was obtained from the results of this period. This is significant at the .05 level of confidence.

By observation it appears as if the experimental group improved most in the traits of interest, competency, confusion, and relaxation and least in leadership and friendliness.

The results of the Intergroup Relations Scale show that a significant improvement occurred during the entire experiment, for the t of 2.77 is significant beyond the .01 level of confidence. The greatest change occurred during the latter half of the experiment. The t of 3.57 obtained for this period of therapy is significant well beyond the .01 level of confidence.

By observation it appeared as if the experimental group improved most in the traits of relaxation and competency and least in friendliness and leadership.

The results of the motoric test of jabs show a significant improvement when evaluated on a pre-to-post experimental basis. The t for this period of therapy was 2.01. This is significant at the .05 level of confidence.

By observation of the basketball goal shooting data it appears as if the patients within the control group remained basically the same while the experimental group seemed to improve not only in speed as determined by the attempted shots, but also in eye-hand coordination as shown by the overall improvement in shooting percentage.

The following may be drawn from this study:

1. Adapted physical education was rendered more effective by concurrent treatment with Thorazine.
2. The experimental group of patients reflected a statistically significant improvement in social change.
3. Intergroup relations within the experimental group showed a statistically significant gain.
4. The results of the motoric test showed a statistically significant increase in motoric function on the pre-to-post therapy evaluation.

VETS BENEFITS DESCRIBED

A new booklet, "Federal Benefits Available to Veterans and Their Dependents," is on sale at the U.S. Government Printing Office in Washington, D. C., for 15 cents a copy, with a 25 percent discount for 100 or more copies.

Prepared by Veterans Administration, the booklet explains the nature of all major U.S. veterans' benefits, the eligibility requirements for each benefit, and where to apply. An index arranged by wars and peacetime service provides a ready reference to applicable benefits.

PLEASE
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Book Reviews

"The Trouble With Women," by Eleanor Metheny and James A. Peterson. (New York: Vantage Press, Inc., 1957. 222 pp. \$3.75)

In these days of Sputniks and ICBMs the emphasis on science is almost oppressive. This is perhaps inevitable yet the depths of the human spirit are not to be plumbed by clinical investigations conducted under controlled conditions and evaluated by statistical procedures. In most cases an unhappy person does not comprehend the real bases for his problems or even recognize that they are to be found within himself. Only individuals possessing the unique quality of empathy are able to achieve the insight which is necessary to lay bare the complex motivations and reactions of human beings.

Two of those rare souls possessing this quality—Eleanor Metheny, a physical educator, and James A. Peterson, a sociologist—have here combined their perceptions and the resources of their respective disciplines to bring forth an analysis of the problems of modern women. In fictional form they depict crises in the lives of five unhappy women, each of whom faces problems which are inherent and all but universal in our culture. These crises are then analyzed to determine why they occur and how they may best be resolved. The difficulties in which their subjects find themselves are seen to result from conditioning processes and shifting environmental pressures quite beyond their control. However, they must be surmounted if the women are to justify their existence to themselves.

In our time technology has far outrun sociology, and the stresses and strains with which this unbalance burdens our culture threatens to engulf it. Women, like labor unions, minority racial groups, and small nations arising from the wreckage of the great empires of the recent past, are finding that the freedom and power inherent in the democratic concept may be enjoyed only at a price—a surrender of outmoded privileges and an assumption of certain responsibilities. There are individuals and groups who fail to understand that these privileges are a hallmark of inferiority and these responsibilities are an inevitable accompaniment of status, and there are those who profit from their failure and who will do their utmost to insure that they do fail.

The road through personal and cultural difficulties to the achievement of a genuine acceptance of the idea of the common worth of all individuals may be rough but it is not impassible. The authors must be reckoned among the pioneers who have blazed the trail which the rest of us must follow if we are to realize the potentials for personal development inherent in the democratic ideal. Obtuse indeed will be the reader who fails to find within this book something which will aid him in his own quest for acceptance and better equip him to assist his fellow seekers.

—PJR

"Artificial Limbs," Spring, 1957. (Washington 25, D.C.: Prosthetics Research Board)

This issue consists principally of articles by University of California scientists on prosthetic problems of upper extremity and above-knee amputees, and a discussion of reconstruction vs. prosthesis of the non-functional hand, by Bunnell. The passing of Bunnell is also noticed. Most of this material is in the form of case studies or a review of current concepts in the field and does not lend itself well to a review. The issue is especially valuable for its frank recognition of the fact that prosthetic devices do not meet the needs of all patients and should not be forced upon them.

—PJR

"The Chronically Ill," by Joseph Fox. (New York: Philosophical Library, Inc., 1957. 202 pp. \$3.95)

Now that many of the disease problems of the past have been conquered and advances such as immunization for poliomyelitis and treatment of syphilis with antibiotics have been achieved, "chronic illnesses rapidly are becoming the outstanding problem of the United States." The author draws upon his many years of experience as a director of homes for the aged to present a problem of great concern. He defines chronic illnesses as those which are permanent, leave residual disability, are caused by non-reversible pathological alteration of the patient, require special training of the patient for rehabilitation, or require long periods of supervision, observation or care. Next he proceeds to discuss their emotional and psychological impact upon the patient in order to establish a viewpoint for those who are to nurse him. The cooperation necessary between the disabled and those who are to help him resume or continue normal life is then discussed. This is followed by a section devoted particularly to the aged since chronic disorders increase with age. The book concludes with a discussion of the sociological and economic aspects of chronic illnesses, with the final chapter being directed toward the medical and institutional planning for prolonged illnesses.

Throughout the book there is an undertone of humanitarianism, and as stated in the introduction by Dr. Blue-stone: "There is a practical religion in these pages, and what he has consented to do in this labor of love is God's work." This text fulfills a need experienced by others who are similarly concerned.

—MLB

"The Person in Psychology: Reality or Abstraction?," by Paul Laffitte. (New York: Philosophical Library, 1957, 233 pp. \$6.00)

Modern psychology is "taken to task" by Dr. Laffitte, Senior Lecturer in Psychology at the University in Melbourne, Australia, as the misapplication of a mass of data in such a fashion that man becomes an abstract nonentity. The author argues that the psychological data, although accurate, is misused because it is not related to common experience. His suggested remedy is that psychology should be considered as a foundation for psychological investigation.

Whether or not the reader is in agreement with this thesis, the material and its interpretation is ably presented and may prove stimulating to the scholar who has the patience to study the author's premise, arguments and conclusion. References and index are complete.

—DCL

"Weight-Training for Sport and Fitness," by Michael Fallon. (London: Nicholas Kaye Limited, 1957, 123 pp. \$3.25). Distributed in the U.S. by SportShelf, New York 33, N.Y.

This little book may be divided into four parts. The first and largest section "sells" weight training by citing particulars of its use by famous athletes. Although done in journalistic style rather than in the research fashion which would appeal to readers of this *Journal*, the very weight of the material is convincing. It is an effective bit of propaganda for weight training and should do much to convince those unacquainted with the subject that the use of weights does not make a man slow and musclebound. The second part suggests training routines for various activities; it will be interesting to see whether it convinces track coaches in particular that their athletes should use weights in the off-season. The third section describes the exercises themselves and the fourth makes recommendations for weight training by non-athletes and by women. The text should prove a handy source of apologetic material for those who desire to promote weight training. For use as an actual guide to exercising with the weights it suffers both price wise and in content by comparison with Murray's *Weight Lifting and Progressive Exercise*, reviewed here January, 1955.

—PJR

"The Handicapped and Their Rehabilitation," edited by Harry A. Pattison. (Springfield: Charles C. Thomas, 1957; 944 pp. \$14.75)

This massive tome is a veritable encyclopedia of material relating to physical medicine and rehabilitation. In Part One Knudson discusses the philosophy of physical medicine and rehabilitation, and Pattison considers the relationship of the human constitution to disease processes. Part Two consists of 14 chapters, each presenting the rehabilitation process in a given condition. In Part Three a chapter is devoted to each of the services involved in rehabilitation. Chapter 18, "The Medical Rehabilitation Coordinator," is by Van Schoick, and Chapter 24, "Corrective Therapy," is by Davis. Rather oddly, Chapter 31, "The Role of the Clergy in Rehabilitation," which emphasizes the Jungian approach, is "made possible through the courtesy of the New York Protestant Episcopal City Mission." The reader is left to wonder at the absence of Catholic and Jewish representation. Part Four deals with "Special Problems and Procedures," such as fatigue, nutrition and employment.

Most of the chapters are followed by a bibliography. An extensive index is provided and there are a few illustrations scattered through the text. In all, some 44 contributors are represented. There are considerable differences in the way in which the various authors have presented their material. The chapter on physical therapy, for instance, deals largely with training, licensing, professional organization and current problems. The following chapter, on corrective therapy, emphasizes what the therapist does for various types of disability. It is, of course, practically impossible to present a meaningful review of a book of this type.

Like other encyclopedias, this volume will probably find its greatest sphere of usefulness on the shelves of libraries, where it may be consulted by students who have been assigned the preparation of a paper on physical medicine and rehabilitation. It will also be of use to newly appointed chiefs of physical medicine who are not sure "who does what and why." The therapist already in the field will have comparatively little occasion to refer to it.

—PJR

"Healthy Personality Development in Children." Report of the Interagency Conference. (New York: The Josiah Macy, Jr. Foundation, 1957, 154 pp.)

What are the stages necessary to the development of a healthy personality? How can the Federal government better integrate and utilize the newer insights and knowledge regarding personality development in children?

In the above questions we have the essence of this report of the Interagency Conference, a group made up of social scientists and of representatives of numerous U.S. government agencies. The group's purpose in meeting was to discuss ways in which Federal governmental agencies can apply in their respective programs the findings of social scientists—particularly those of Erik Erikson, a psychoanalyst, and of Otto Klineberg, a physician and psychologist.

Erikson presents some general conclusions about normality and a discussion of the crises that children must undergo in their development of a healthy personality. Klineberg discusses the importance of studying the child from a number of different directions: cultural, religious, social, and economic.

Klineberg's study illustrates the interdisciplinary method utilized by the Interagency Conference, i.e., the bringing together of specialists in different fields. Readers of this *Journal* are no doubt aware of the increasing difficulty of communication between experts in different fields and of the many causes for this problem—"each group has its own criteria and its own prejudices regarding validity of data." And so it becomes increasingly important to set in motion a process of integrating the fragments of knowledge into a whole. It is well worthwhile to read this report if only for the purpose of observing the interdisciplinary approach in action.

—CTS

"The Infantile Cerebral Palsies," by Eirene Collis, W. R. F. Collis, William Dunham, L. T. Hilliard and David Lawson. (Springfield: Charles C. Thomas, 1957. 97 pp. \$3.00)

The distinguished authors of this little volume introduce their topic with the thesis of William Little (1810-1894), who was himself a sufferer from an equinus deformity. Little believed that the recognition and study of cerebral palsy must be on a physiological basis rather than on a mechanical or surgical one. It is this thesis that is elaborated in the text. The authors believe that many of those previously working with cerebral palsied children tended to forget the child as a person, and attention by the orthopedic surgeon and the physiotherapist was not directed until after the problem became fully developed. The authors stress early recognition of (a) any evidence of specific motor defect and if present, (b) to determine the child's intellectual resources. The book also describes the types of cerebral palsy in children and their diagnoses and management. Such types as hemiplegia, variable rigidity, athetoid and ataxic cerebral palsy are covered, and an approach to each is outlined. The volume is a valuable addition to the library of anyone dealing with this problem.

—MLB

"The Medical Interview," by Ainslie Meares. (Springfield: Charles C. Thomas, 1957. 117 pp. \$3.50)

This volume presents a dynamic outline of the interpersonal reaction between physician and patient during the medical interview. In clear, concise language Meares covers motivation, intellectual factors, non-verbal communication, rapport, passivity, hostility, abreaction, suggestion (its nature and use during the interview), physical examination, and silences. He concludes with a chapter of practical suggestions related to the resolution of basic difficulties which may be present during the medical interview. Conscious and unconscious attitudes and the reactions of doctor and patient are frankly discussed. Practical suggestions are given which may ease the doctor in the emotional stress situations which may occur during the medical interview.

For the person who must secure medical information, this small, concise, clearly written outline of the clinical significance of reactions occurring during the interview will be a source of ready references. The medical or psychological student and social worker will find dynamic explanations of problem behavior in the interviewer-interviewee interpersonal relationship, the understanding of which will result in an improved relaxed permissive interview which will be objective rather than subjective. The index is adequate.

—DCL

"The Hangover," by Benjamin Karpman. (Springfield: Charles C. Thomas, 1957. 515 pp. \$9.50)

Never has the "hangover" been studied more seriously than in this text. Karpman, whose interest in and experience with the psychiatric aspects of alcoholism is most extensive, herein presents the case studies of seven men and seven women from an original approach: an analysis of the "hangover" experienced by each patient. Holding that alcoholism is a neurosis, the author contends that the difference between the chronic alcoholic and the controlled drinker is in effect the difference in their "hangovers." This difference offers an opportunity for a glimpse into the psychological life of alcoholics, as the alcohol brings out their underlying hysterical neurotic foundation.

Each case is presented in a similar style, followed by a discussion of the similarities and dissimilarities shown, and finally by an attempted synthesis of the problem of alcoholism. The book is a new and interesting approach to an old subject. It makes interesting reading for anyone concerned with the underlying emotional conflicts of the obsessive drinker, but it is questionable whether it contributes anything new to our understanding of the problem.

—MLB

"First Aid Textbook." Fourth Edition. (Washington, D.C. The American National Red Cross, 1957. 241 pp.)

This is the first complete rewrite of this standard text since the Revised Edition of 1945. First to impress the reader familiar with the previous editions are the color plates of the circulatory system, the skeletal system, the musculature, the internal organs, poisonous snakes, and poisonous plants. More important are the changes in certain techniques which had long been accepted as definitive. For example: "The tourniquet is mentioned principally to discourage its use. Its application may cause tissue injury . . . It is used far too often." Frost bite is now treated by immersing the part in water heated to body temperature. The three-man carry has been altered so that two people are on one side and the other on the opposite side, facing the first two and grasping their inside wrists. A special form of artificial respiration for children is described. All in all, it is clear that those of us who earned our Red Cross cards some time ago are going to have to repeat the courses if we wish to remain abreast of current developments. The text is now divided into two parts: Section I covers Standard First Aid Theory and Section Two covers Advanced First Aid Course Theory and Skills. This should greatly simplify matters for teachers and lead to greater uniformity in material covered. Most of the illustrations have been redrawn or replaced by photographs and much new material has been added. Altogether this edition represents a great advance over previous versions, and the text will no doubt continue to enjoy the unique position which it holds in its field.

—PJR

"First Aid Afloat," by Paul B. Sheldon. (New York: Yachting Publishing Corporation, 1956. 24 pp. Paper. 50c)

The yachtsman, or other small boat sailor, is occasionally confronted with first aid problems whose answers are not to be found in the Red Cross *First Aid Textbook*. In this small monograph, printed appropriately enough on water resistant paper, the Fleet Surgeon of the Cruising Club of America has made an excellent contribution to first aid literature. As might be anticipated, the discussion of seasickness is perhaps the outstanding feature of the booklet, but he has some suggestions, such as the one for dealing with severe nosebleed, which are new to this reader. Unlike most other writers on the subject, Sheldon does not hesitate to recommend the use of prescription drugs. The pamphlet is clear, definite, concise, practical and valuable. It should be in the medicine chest of every vessel which is not big enough to carry her own doctor.

—PJR

"Physical Therapy—Essentials of a Hospital Department." (Chicago: American Hospital Association, 1957. 42 pp. Paper.)

This pamphlet is designed to help hospital administrators in establishing and developing physical therapy departments in general hospitals. The chapters dealing with personnel, environment, safety, records, etc. cover material which is much the same for any department and could be used for corrective therapy, occupational therapy, or other therapies with comparatively minor modifications. The corrective therapist, however, will be startled by the sections on equipment and the model layouts. Here are shown bar bells, gait trainers, and all the other apparatus which he has come to think of as his own special tools. This reviewer is not familiar with an American Hospital Association booklet dealing with corrective therapy but will be interested in seeing one in order to determine how the association recognizes the distinctions between the functions of the two departments and the equipment appropriate to each.

—PJR

"Hippocratic Medicine—Its Spirit and Method," by William Arthur Heidel. (New York: Columbia University Press, 1941. 149 pp.) Available from The Josiah Macy, Jr. Foundation.

Precisely when Hippocrates lived is a mystery; what, if any, of the Hippocratic corpus is actually his work is uncertain. Yet, says Heidel, this mass of literature may be called Hippocratic because it reveals evidence of a common level of knowledge and a common point of view. Clearly it is the work of men of high intellectual ability whose goal was to make their profession both an art and a science. Since man was held to be composed of the same substances as the rest of the world, they could contend that to know philosophy one must first know physiology. They stressed the unity of man, and that a disease must affect the entire organism; their approach therefore stressed the patient rather than the disease. In the last resort the physician must depend on the inherent recuperative powers of the human organism. The author might have pointed out that this is essentially the approach of the osteopathic physicians of our own day.

The Hippocratic physician felt that "It was rather health, its maintenance or restoration, that wholly engaged" his attention. He frequently visited the gymnasia for the purpose of observing the physical condition of his charges, and prescribed appropriate diet and exercise. If Hippocratic medicine has little to offer us, the author concludes, it is mainly the result of the elementary level of the science of the time, and we owe it a debt of gratitude for first laying the foundations of science, to which we must credit our own advancements.

This is a brilliantly written monograph by a scholar who unfortunately passed away just as he finished the manuscript. The Josiah Macy Foundation would do all interested in the history of medicine a favor if they would sponsor similar volumes on other great figures in the development of medicine.

—PJR

BOOKS RECEIVED

"The Behavioral Scientists and Research in the Health Field," by Odin W. Anderson and Milvov Seacat. (New York: Health Information Foundation, 1957. 16 pp. n. p. Paper)

A survey of the number, areas of research, sources of funds and working conditions of behavioral scientists engaged in research in the health field.

"Health and Physical Education Microcard Bulletin." Eugene: University of Oregon, 1 October 1957. 31 pp. Paper. Free.

Most recent edition of a valuable reference.

PARAPLEGIC NURSE HOLDS FULL-TIME JOB

Confinement to a wheel chair has not stopped a Veterans Administration nurse from holding a full-time job in her chosen profession. Miss Rosina I. Magee, a paraplegic, is a registered nurse on the staff of the VA center in Martinsburg, W. Va.

Her assignment is to instruct and guide domiciliary members in health practices and to develop in them a better understanding of their condition so they may adapt to planned group living and thereby become adjusted to returning to the community. Miss Magee came to the Martinsburg center in February 1957 and has been with VA since April 1946.

While she was getting dressed for duty on September 7, 1954, she suddenly became paralyzed in the legs. No specific cause for the paralysis is known, but doctors believe it may have been produced by a virus or blood clot.

Through the efforts of the VA assistant chief medical director for planning in Washington, D.C., she was placed in her job at the Martinsburg center, where ramps, wide doorways, and other facilities are helpful for handicapped persons in wheel chairs.

News and Comments

NEW DRUG EFFECTIVE AGAINST HIGH BLOOD PRESSURE

Veterans Administration has reported the "marked effectiveness" of a new drug against high blood pressure, following an eight-months study with more than 100 patients. Dr. Edward D. Freis of the VA hospital in Washington, D.C., said the clinical trials indicated combinations of a synthetic compound, chlorothiazide, with other drugs reduce blood pressure more effectively than any drugs generally used to treat the disease.

Dr. Freis said older drugs produced reductions in blood pressure averaging 11 percent of the pre-treatment level, while combinations with chlorothiazide gave an average reduction of 27 percent. Chlorothiazide is effective against high blood pressure when used alone, although generally not so effective as in combination, according to Dr. Freis.

He said the strict limitation of table salt in diet, which has been followed in treatment of high blood pressure, does not appear necessary for patients receiving chlorothiazide, although moderate restriction still is desirable for the drug to exert its maximum effect. Use of the new drug also tends to reduce unpleasant effects from other drugs, he said, since dosage of the older compounds can be reduced, and they may sometimes be eliminated when chlorothiazide is given.

Compounds tested in the VA study include reserpine, a tranquilizer; hydralazine, a powerful dilator of blood vessels; newer synthetic drugs that block transmission of nerve impulses to the blood vessels (pentolinium tartrate, chlorisondamine chloride, and mecamlamine hydrochloride), and Veratrum alkaloids, which affect nerve control centers to reduce blood pressure.

Assisting in the research were Dr. Annemarie Wanko and Dr. Ilse M. Wilson of Georgetown University Hospital and Dr. Alvin E. Parrish of the VA hospital.

Chlorothiazide was given by mouth to 105 patients, including 73 already receiving other drugs for high blood pressure, to an additional 10 previously untreated for the disease, and to five others who had undergone the nerve-cutting surgery, sympathectomy. After addition of chlorothiazide for the group of 73, a prompt further reduction in blood pressure was recorded in 63 patients, reaching an average of 27 percent below pre-treatment levels. Reductions in blood pressure after treatment with the various older drugs had varied from good to poor in this group, Dr. Freis said.

Conditions of the 73 patients ranged from mild to extremely severe forms of the disease, and chlorothiazide was given over periods of from one to eight months, with an average of about three and a half months. Each of the 10 previously untreated patients who received chlorothiazide alone showed some decline in blood pressure. The average reduction was 17 percent, and only one to three days of treatment were required for the lower blood pressure levels to be reached, Dr. Freis said. In the five patients who had undergone sympathectomy, blood pressure was reduced by an average of 21 percent after administration of chlorothiazide.

"In general, patients looked and felt exceedingly well while taking chlorothiazide," Dr. Freis said. "A few experienced mild nausea which cleared promptly when the drug was discontinued for one day." He cautioned, however, that chlorothiazide has not been used for a sufficient period for doctors to be certain of its long-term effects.

The way in which chlorothiazide acts to reduce blood pressure appears to differ from the action of other drugs against the disease, Dr. Freis noted. The new compound may become a valuable tool for research on high blood pressure, he said.

HORMONE PRODUCTION STUDIED IN RELATION TO SCHIZOPHRENIA

A new relationship between body chemistry and schizophrenia, the most puzzling mental illness, has been announced by Veterans Administration.

Researchers at the VA hospital in Bedford, Mass., have found abnormal cycles of hormone production in schizophrenic patients, evidence which may lead to a new approach to understanding mental illness, VA said. Information presented during a research conference at the Bedford hospital recently suggests these hormone changes are present regardless of whether the patient is acutely mentally sick or recovering.

Biochemist Aniela S. Zygmuntowicz and Dr. Charles C. Colburn, research chief, have been doing studies on the quantity of steroids produced by mentally ill patients. Steroids are a specific group of hormones excreted in the urine that can be isolated and measured by a lengthy laboratory process.

In well persons, chemists know that the production of one group of steroids from the adrenal cortex, known as corticosteroids, increases as that person is subjected to stress of any type. However, the rate of production in the well person returns to normal quite quickly as the body and nature provide the necessary checks and balances to overcome the stress. Miss Zygmuntowicz and Dr. Colburn have found that, in schizophrenics, the body's production of corticosteroids goes through abnormal alternating periods of high and low production, without regard for stresses and strains on the patient.

In the case of one acute mentally ill patient studied for 95 consecutive days, the output of corticosteroids was low initially but gradually rose to normal values while the patient remained psychotic. About three weeks after recovering from his psychosis, the patient began to put out excessively large amounts of these hormones in his urine and continued to do so for 3½ weeks. The output then returned to normal. A chronically ill patient studied for 125 successive days showed an identical pattern of low to high corticosteroid production even though he did not become rational.

Studies are being intensified to see if these high and low cycles persist in all mentally ill persons, and what abnormal functions of the body are causing the variations.

Intriguing, also, to the VA researchers was the dramatic drop in the production of ketosteroids (a group that contains the male sex hormone) by the acutely ill patient, coincidental with his becoming rational. Midway through the study the patient became clinically well again, and at this same time the ketosteroid level dropped sharply and maintained a low average for the remainder of the test period. During the period when the patient was rational, his ketosteroids averaged 11.6 milligrams per 24-hour period. When he became rational, however, the amount dropped abruptly to 5.6 milligrams, and then leveled off to an average of 7.5 milligrams per 24 hours for 50 successive days until the test was concluded.

A psychiatrist, unfamiliar with the results of the lab tests, interviewed the patient almost daily and recorded his return to reality.

CEREBRAL PALSY ACADEMY ELECTS

The American Academy for Cerebral Palsy held its 11th Annual Meeting in New Orleans (Headquarters at the Roosevelt Hotel) November 24, 25, 26, and 27, 1957. The officers for the forthcoming year are as follows: William T. Green, M.D., President, 300 Longwood Avenue, Boston 15, Massachusetts; Robert A. Knight, M.D., President-Elect, 889 Madison Avenue, Memphis 3, Tennessee; Samuel B. Thompson, M.D., Treasurer, 930 Donaghey Building, Little Rock, Arkansas; Raymond R. Rembolt, M.D., Secretary, University Hospital-School, Iowa City, Iowa.

The 1958 Annual Meeting will be held in Providence, Rhode Island, September 25, 26, and 27, at the Sheraton Biltmore Hotel.

AMERICAN BOARD FOR CERTIFICATION OF CORRECTIVE THERAPISTS

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Burr S. Zachary

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Herman Lodge
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Melvin Sader
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John H. Lewis
Olaf C. Naugle

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Claude T. Daniel
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Joseph J. Phillips
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James W. Watkins
Lee B. Wilson

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Francis M. Marusak
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Daniel Bennett
Edith P. Burkland
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Edward S. Curran
Frank S. Deyoe, Jr.
Frank J. Dignan
Thomas J. Driscoll

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Irwin Freedman
James J. Gallo
Charles E. Goslow
George Heos
James J. Kacavas
Romeo A. Laramee
Gerald J. LeHoux
Lawrence P. McNulty
Sidney Mackler
Raymond E. Nilson
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Arthur A. Peters
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Roberto Santana
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Earl W. Whitaker

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Raymond Kreick
Adolphus A. LaLonde
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Chester A. Nelson

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Tom G. George
John M. Hawk
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Hyman Kinstler
M. Raymond Robinson
Raymond Schmidt
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W. Wayne Reynolds
Herbert Rubin

Nevada

Simon L. Zive

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David S. Bilowit
Joseph H. Donohue
Edward D. Friedman

Van D. Goodsell
C. Thomas Hassard
Chris A. Kopf
Kenneth Osinski
Frank G. Vulture
Donald W. Wright

New Mexico

Henry L. Kil

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John J. Baldino
William C. Beeke
Margot Behrend
Leo Berner
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Sam Boruchov
Vincent J. Bruno
Michael N. Buonanno
Frank F. Chilletti
Oscar Ciner
Bernard L. Cunningham
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Joseph W. Delmerico
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Marthann E. Doolittle
Joseph T. D'Orazio
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Samuel B. Ford, Jr.
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Perry Gilbert
Walter J. Goralewicz
Benjamin Gordon
Louis Guignard
Wendell C. Hewson
William H. Kultow
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Theresa J. Lanna
Ambrose L. LaVigne
Julius Levin
Harold A. McCormick
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J. Robert Macaluso
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Ward A. Merrell
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Alfred J. Sapecky
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David Ser
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Eleanor B. Stone
Johannes Timmerman
Raymond A. Weiss
Roger H. Wessel
Robert T. Westerman
Hyman S. Wettstein
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Siegmund L. Zweig

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Albert Koball
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Richard L. Christian
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Robert L. Curtis
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Eli A. Ellis
Richard G. Hannan
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Robert L. Kohler
Arthur Landy
Verl V. Mangen
Charles M. Morris
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Earl B. Raymer
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Raymond A. Yates

Oklahoma

Donald J. Relyea

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Everett C. Converse
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Frederick W. Pramann

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John A. Cerra
Frank R. Coleman
William E. Cully
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Karl W. Erdman
Durwood A. Evans
William Gruber
Warren L. Hayman
Charles D. Karoll
Wayne E. Kirker
Vincent T. McGrath

Virginia MacMillan
Emmett V. Mariano
Hedwig H. Mautner
John P. Noisette
John T. Quailley
John C. Sales
Charles J. Toman
Edward P. Walsh
Michael A. Walsh
Emil W. Weber
Michael Yarosh

Rhode Island

Walter L. Wilkins

South Carolina

Walter B. Carns
Jackson B. Cobb
Freeman E. Huskey
George A. Sloan

South Dakota

Harry L. Bradley
Hollie E. Brownlee
Guy I. Herald

Tennessee

Robert Baskin
Walter E. Beasley, Jr.
Paul B. Bell
Clarence L. Chase
Charles W. McHugh
Paul R. Regan
Carl T. Tenpenny
Stanley H. Wertz

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John J. Arena
Will O. Bearden
Rex M. Bishop
Wilburn Curnutt
David W. Holzaepfel
J. R. Green
Robert H. Gunn
Ralph F. Hooker
Jewett L. Hunter
Karl K. Klein
Edwin Maas
John B. Nall
Ernest E. Raines
Jack Tracktir
Julian Vogel
Edward J. Wojeck

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Robert G. Barton
James H. Cushing
Henry H. White
Harlan C. Wood

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Samuel C. Burchart
Lester W. Daniels
George V. Devins
Clair A. Kaltreider
Dennis C. Rice
Alexander S. Semenkovich
William C. Thomas
Viola W. West

Washington

Bruce M. Goodrich
Roland L. Hackler
Alfred E. Seaman
Louis J. Souza
Robert C. Templar
Walter A. Walkord

West Virginia

Willard I. Braithwaite
James M. Cadigan

Wisconsin

Peter R. Brasic
John E. Cemirys
Richard L. Comstock
Richard A. Cowman
Dominic Cuda
Louis Fishbune
John C. Foti
Howard E. Joy
Jerry Mills
William P. Milne
Edward J. Misiak
George E. Nash
William A. Peatfield
Leslie M. Root

Wyoming

Robert Kramer

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